

2019



GHS INDEX

GLOBAL HEALTH SECURITY INDEX

Building Collective Action and Accountability



BUILDING A SAFER WORLD



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Center for Health Security

Index developed with



We are grateful to the Open Philanthropy Project, the Bill & Melinda Gates Foundation, and the Robertson Foundation. The Global Health Security Index would not have been possible without their generous support.



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Photographer: Samyukta Lakshmi/Bloomberg via Getty Images

Executive Summary

Biological threats—natural, intentional, or accidental—in any country can pose risks to global health, international security, and the worldwide economy. Because infectious diseases know no borders, all countries must prioritize and exercise the capabilities required to prevent, detect, and rapidly respond to public health emergencies. Every country also must be transparent about its capabilities to assure neighbors it can stop an outbreak from becoming an international catastrophe. In turn, global leaders and international organizations bear a collective responsibility for developing and maintaining robust global capability to counter infectious disease threats. This capability includes ensuring that financing is available to fill gaps in epidemic and pandemic preparedness. These steps will save lives and achieve a safer and more secure world.

The Global Health Security (GHS) Index is the first comprehensive assessment and benchmarking of health security and related capabilities across the 195 countries that make

up the States Parties¹ to the International Health Regulations (IHR [2005]).² The GHS Index is a project of the Nuclear Threat Initiative (NTI) and the Johns Hopkins Center for Health Security (JHU) and was developed with The Economist Intelligence Unit (EIU). These organizations believe that, over time, the GHS Index will spur measurable changes in national health security and improve international capability to address one of the world's most omnipresent risks: infectious disease outbreaks that can lead to international epidemics and pandemics.

The GHS Index is intended to be a key resource in the face of increasing risks of high-consequence³ and globally catastrophic⁴ biological events and in light of major gaps in international financing for preparedness. These risks are magnified by a rapidly changing and interconnected world; increasing political instability; urbanization; climate change; and rapid technology advances that make it easier, cheaper, and faster to create and engineer pathogens.

¹ As of April 16, 2013, there are 196 States Parties to the World Health Organization (WHO) 2005 International Health Regulations (IHR), including the Holy See. The Holy See is a sovereign juridical entity under international law, but it was not included in the country-specific research for this Index in light of the Holy See's lack of an independent health system. This report will refer to the assessed "States Parties" as "195 countries."

² The WHO IHR (2005) is the foundational international standards for health. The IHR (2005) is a binding legal instrument to address cross-border public health risks. The goal of the IHR (2005) is to prevent, protect, control, and respond without disrupting international trade and traffic. The IHR (2005) provided the guiding regulations behind many of the indicators included in the GHS Index.

³ High-consequence biological events are defined here as infectious disease outbreaks that could overwhelm national or international capacity to manage them. For example, although international health security has improved following the 2014–2016 Ebola epidemic in West Africa, countries and international responders are not prepared to quell outbreaks that occur in violent or insecure settings; deliberate biological events that require close coordination and investigative links between security, health, and humanitarian actors; and fast-moving respiratory diseases with high mortality that could spread rapidly to become global pandemics.

⁴ Global Catastrophic Biological Risks are biological risks of unprecedented scale that could cause severe damage to human civilization at a global level, potentially undermining its long-term potential. See Nick Alexopoulos, "Center for Health Security Publishes First Working Definition of Global Catastrophic Biological Risks," Johns Hopkins Center for Health Security, July 27, 2017, www.centerforhealthsecurity.org/about-the-center/newsroom/news_releases/2017-07-27_global-catastrophic-biological-risk-definition.html.

Developed with the guidance of an international expert advisory panel, the GHS Index data are drawn from publicly available data sources from individual countries and international organizations, as well as an array of additional sources including published governmental information, data from the World Health Organization (WHO), the World Organisation for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO), the World Bank, country legislation and regulations, and academic resources and publications. Unique in the field, the GHS Index provides a comprehensive assessment of countries' health security and considers the broader context for biological risks within each country, including a country's geopolitical considerations and health system and whether it has tested its capacities to contain outbreaks.

Knowing the risks, however, is not enough. Political will is needed to protect people from the consequences of epidemics, to take action to save lives, and to build a safer and more secure world.

WHY IS THE GHS INDEX NEEDED?

It is likely that the world will continue to face outbreaks that most countries are ill positioned to combat. In addition to climate change and urbanization, international mass displacement and migration—now happening in nearly every corner of the world—create ideal conditions for the emergence and spread of pathogens. Countries also face an increased potential threat of accidental or deliberate

release of a deadly engineered pathogen, which could cause even greater harm than a naturally occurring pandemic. The same scientific advances that help fight epidemic disease also have allowed pathogens to be engineered or recreated in laboratories. Meanwhile, disparities in capacity and inattention to biological threats among some leaders have exacerbated preparedness gaps. The GHS Index seeks to illuminate those gaps to increase both political will and financing to fill them at the national and international levels. Unfortunately, political will for accelerating health security is caught in a perpetual cycle of panic and neglect. Over the past two decades, decision makers have only sporadically focused on health security, despite concerns stemming from the 2001 anthrax attacks, the emergence of the Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome coronaviruses, and the looming threat of a pandemic caused by a novel strain of influenza.

In September 2014, the United Nations (UN) Security Council met in crisis over the growing Ebola epidemic in West Africa. Massive global assistance was needed to stop the outbreak because of insufficient national capacities in Guinea, Liberia, and Sierra Leone to quickly detect and respond to the epidemic.

As a result, the West Africa Ebola epidemic killed at least 10,000 people and infected more than 28,000.⁵ The three affected countries lost \$2.8 billion in combined GDP, and a massive global response totaled billions of dollars before the outbreak was contained. The crisis awakened

⁵ Centers for Disease Control and Prevention, "2014–2016 Ebola Outbreak in West Africa," www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html.

the world to the reality that pathogens can emerge unexpectedly, and when outbreaks occur in countries that are unprepared, they can spill beyond borders, threatening the peace, health, and prosperity of all countries. However, despite newly available vaccines and therapies, response to the Ebola outbreak that began in 2018 in eastern Democratic Republic of Congo has been hampered by violence and instability, community resistance to outbreak mitigation measures, hospital transmission, delays in detection and isolation, and lack of funding and resources.

Delays in the global response to Ebola in 2014 led to a restructuring of the WHO and prompted calls for measurement and transparent reporting of countries' public health capacities, including the launch of the voluntary WHO IHR Joint External Evaluations (JEEs). Since then, health, policy, and security leaders have developed numerous high-level reviews and recommended ways to identify, finance, and fill major preparedness gaps. These recommendations are relevant for epidemic threats, such as Ebola, and high-consequence pandemic threats, such as a fast-spreading respiratory disease agent that could have a geographic scope, severity, or societal impact and could overwhelm national or international capacity to manage it.⁶ Some of those recommendations have been implemented, but many have been shelved owing in part to lack of financing. Nearly all recommendations pointed to a need to better understand and measure—on a transparent, global, and recurring basis—the state of international capability for preventing, detecting, and rapidly responding to epidemic and pandemic threats.

The GHS Index is designed to meet this need.

DEVELOPING THE GHS INDEX

The NTI, JHU, and EIU project team—with generous grants from the Open Philanthropy Project, the Bill & Melinda Gates Foundation, and the Robertson Foundation—worked with an international advisory panel of 21 experts from 13 countries to create a detailed and comprehensive framework of 140 questions, organized across 6 categories, 34 indicators, and 85 subindicators to assess a country's capability to prevent and mitigate epidemics and pandemics.

The GHS Index relies entirely on open-source information: data that a country has published on its own or has reported to or been reported by an international entity. The GHS Index was created in this way with a firm belief that all countries are safer and more secure when their populations are able to access information about their country's existing capacities and plans and when countries understand each other's gaps in epidemic and pandemic preparedness so they can take concrete steps to finance and fill them. The indicators and questions that compose the GHS Index framework also prioritize analysis of health security capacity in the context of a country's broader national health system and other national risk factors.

⁶ United Nations General Assembly, "Protecting humanity from future health crises: Report of the High-level Panel on the Global Response to Health Crises," https://www.un.org/ga/search/view_doc.asp?symbol=A/70/723.

The 140 GHS Index questions are organized across six categories:



PREVENT

1. PREVENTION

Prevention of the emergence or release of pathogens



DETECT

2. DETECTION AND REPORTING

Early detection and reporting for epidemics of potential international concern



RESPOND

3. RAPID RESPONSE

Rapid response to and mitigation of the spread of an epidemic



HEALTH

4. HEALTH SYSTEM

Sufficient and robust health system to treat the sick and protect health workers



NORMS

5. COMPLIANCE WITH INTERNATIONAL NORMS

Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms



RISK

6. RISK ENVIRONMENT

Overall risk environment and country vulnerability to biological threats

FINDINGS AND RECOMMENDATIONS

This report summarizes the results of the first GHS Index, including overall findings about the state of national health security capacity across each of the six GHS Index categories, as well as additional findings specific to functional areas of epidemic and pandemic preparedness. The full report also offers 33 recommendations to address gaps identified by the GHS Index. All the findings and recommendations are summarized on pages 12–15 and described in detail throughout the full report, which begins on page 31.

Among its 140 questions, the GHS Index prioritizes not only countries' capacities, but also the existence of functional, tested, proven capabilities for stopping outbreaks at the source. Several questions in the GHS Index are designed to determine not only whether a capacity exists, but also whether that capacity is regularly—for example, annually—tested and shown to be functional in exercises or real-world events.

The GHS Index also includes indicators of nations' capacities and capabilities to reduce Global Catastrophic Biological Risks (GCBRs), which are biological risks of unprecedented scale that could cause severe damage to human civilization at a global level, potentially undermining civilization's long-term potential.⁷ These are events that could wipe out gains in sustainable development and global health because of their potential to cause national and regional instability, global economic consequences, and widespread morbidity and mortality.

⁷ Monica Schoch-Spana et al., "Global Catastrophic Biological Risks: Toward a Working Definition," *Health Security* 15, no. 4 (2017): 323–28, www.liebertpub.com/doi/full/10.1089/hs.2017.0038.

Whereas every country has a responsibility to understand, track, improve, and sustain national health security, new and increased global biological risks may require approaches that are beyond the control of individual governments and will necessitate international action. Therefore, the recommendations contained in this report are made with the understanding that health security is a collective responsibility, and a robust international health security architecture is required to support countries at

increased risk. As a result, in addition to the many recommendations intended for national leaders, the GHS Index also includes recommendations aimed at decision makers within the UN system, international organizations, donor governments, philanthropies, and the private sector. These are especially important in the case of fast-spreading, deliberately caused, or otherwise unusual outbreaks that could rapidly overwhelm the capability of national governments and international responders.

OVERALL FINDING

National health security is fundamentally weak around the world. No country is fully prepared for epidemics or pandemics, and every country has important gaps to address.

The GHS Index analysis finds no country is fully prepared for epidemics or pandemics. Collectively, international preparedness is weak. Many countries do not show evidence of the health security capacities and capabilities that are needed to prevent, detect, and respond to significant infectious disease outbreaks.

The average overall GHS Index score among all 195 countries assessed is 40.2 of a possible score of 100.

Among the 60 high-income countries, the average GHS Index score is 51.9. In addition, 116 high- and middle-income countries do not score above 50. Overall, the GHS Index finds severe weaknesses in country abilities to prevent, detect, and respond to health emergencies; severe gaps in health systems; vulnerabilities to political, socioeconomic, and environmental risks that can confound outbreak preparedness and response; and a lack of adherence to international norms.

Specific scores for the GHS Index categories are as follows:

PREVENTION: Fewer than 7% of countries score in the highest tier⁸ for the ability to prevent the emergence or release of pathogens.

DETECTION AND REPORTING: Only 19% of countries receive top marks for detection and reporting.

RAPID RESPONSE: Fewer than 5% of countries scored in the highest tier for their ability to rapidly respond to and mitigate the spread of an epidemic.

HEALTH SYSTEM: The average score for health system indicators is 26.4 of 100, making it the lowest-scoring category.

COMPLIANCE WITH INTERNATIONAL NORMS: Less than half of countries have submitted Confidence-Building Measures under the Biological Weapons Convention (BWC) in the past three years, an indication of their ability to adhere to important international norms and commitments related to biological threats.

RISK ENVIRONMENT: Only 23% of countries score in the top tier for indicators related to their political system and government effectiveness.

⁸ The GHS Index scoring system includes three tiers. Countries that score between 0 and 33.3 are in the bottom tier (also called "low scores"), countries that score between 33.4 and 66.6 are in the middle tier (also called "moderate scores"), and countries that score between 66.7 and 100 are in the upper or "top" tier (also called "high scores").



Members of the International Panel of Experts, London, 2019. L-R: Dr. Oyewale Tomori, Mr. Lawrence O. Gostin, and Dr. Issa Makumbi

This report offers 33 individual recommendations related to the data findings across its six categories. The following is a subset of high-level recommendations related to overarching findings. For a listing of full recommendations, see the summary on pages 12–15 and the full report starting on page 31.

- National governments should commit to take action to address health security risks. Leaders should closely coordinate and track in-country health security investments with an emphasis on coordinating them with improvements to routine public health and healthcare systems.
- Health security capacity in every country should be transparent and regularly measured. The results of those external evaluations and self-assessments should be published at least once every two years.
- National and international health, security, and humanitarian leaders should improve coordination among sectors, including operational links between

security and public health authorities, in response to high-consequence biological events, deliberate attacks, and events occurring in insecure environments. They also should work to reduce political and socioeconomic risk factors that can impede outbreak response, including in conflict zones.

- New financing mechanisms to fill epidemic and pandemic preparedness gaps are urgently needed and should be established. These could include a new multilateral global health security financing mechanism, such as a global health security matching fund; expansion of availability of the World Bank International Development Association (IDA) allocations to allow for preparedness financing; and/or development of other new ways—including through existing donor and multilateral financing programs for global health and disaster preparedness and response—to expand resources to incentivize countries to prioritize preparedness funding.

- The Office of the UN Secretary-General, working in concert with the WHO, the UN Office for the Coordination of Humanitarian Affairs, and the UN Office for Disarmament Affairs, should designate a permanent facilitator or unit for high-consequence biological events that could overwhelm the capacities of the current international epidemic response architecture and result in mass casualties. This function would not be operational in nature, but rather the facilitator or unit would convene the public health, security, and humanitarian sectors before and during crises to identify and fill gaps in global preparedness specific to rapidly spreading events with the potential for great loss of life.⁹ The person or unit with this responsibility also would spur simulation exercises in concert with the UN Operations and Crisis Centre to promote unity of effort across public health, humanitarian, and security-led responses.
- Countries should test their health security capacities and publish after-action reviews, at least annually. By holding annual simulation exercises, countries will show commitment to a functioning system. By publishing after-action reviews, countries can transparently demonstrate that their response capabilities will function in a crisis and can identify areas for improvement.
- National governments and donors should take into account countries' risk factors for significant disease outbreaks when making resources available to support health security capacity development. Countries with low scores related to risk environment should be identified as priority areas for capacity development and should receive prompt international assistance when infectious disease emergencies occur within their borders.
- Given the enormous national need, the UN Secretary-General should call a heads-of-state-level summit on biological threats by 2021 focused on creating sustainable health security financing and new international emergency response capabilities.

⁹ In February 2019, NTI, the Georgetown University Center for Global Health Science and Security, and the Center for Global Development convened a senior leaders' tabletop exercise in advance of the Munich Security Conference to determine gaps in the international system for responding to deliberate biological events. For the report containing findings and recommendations from this event, see Elizabeth Cameron et al., A Spreading Plague: Lessons and Recommendations for Responding to a Deliberate Biological Event, Nuclear Threat Initiative paper, June 2019, www.nti.org/analysis/reports/spreading-plague-lessons-and-recommendations-responding-deliberate-biological-event/.

FINDINGS AND RECOMMENDATIONS SUMMARY

See below for a summary of all the major findings and recommendations from the GHS Index. These are described in more detail beginning on page 39.

FINDINGS	DATA HIGHLIGHTS
<p>OVERALL FINDING: National health security is fundamentally weak around the world. No country is fully prepared for epidemics or pandemics, and every country has important gaps to address.</p>	<ul style="list-style-type: none">The average overall Global Health Security Index score totals 40.2 out of a possible score of 100116 high- and middle-income countries do not score above 50
<p>Countries are not prepared for a globally catastrophic biological event, including those that could be caused by the international spread of a new or emerging pathogen or by the deliberate or accidental release of a dangerous or engineered agent or organism. Biosecurity and biosafety are under-prioritized areas of health security, and the connections between health and security-sector actors for outbreak response are weak.</p>	<ul style="list-style-type: none">81% of countries score in the bottom tier for indicators related to deliberate risks (biosecurity)66% score in the bottom tier for indicators related to accidental risks (biosafety)Fewer than 5% of countries provide oversight for dual-use researchNo countries have legislation or regulations in place that require companies to screen DNA synthesis92% of countries do not show evidence of requiring security checks for personnel with access to dangerous biological materials or toxins
<p>There is little evidence that most countries have tested important health security capacities or shown that they would be functional in a crisis.</p>	<ul style="list-style-type: none">85% show no evidence of having completed a biological threat-focused International Health Regulations (IHR) simulation exercise with the World Health Organization (WHO) in the past yearFewer than 5% show a requirement to test their emergency operations center at least annually77% do not demonstrate a capability to collect ongoing or real-time laboratory data24% show evidence of a nationwide specimen transport system89% do not demonstrate a system for dispensing medical countermeasures during a public health emergency19% demonstrate at least one trained field epidemiologist per 200,000 people

RECOMMENDATIONS

National governments should commit to take action to address health security risks.

Health security capacity in every country should be transparent and regularly measured, and results should be published at least once every two years.

Leaders should improve coordination, especially linkages between security and public health authorities, in insecure environments.

New financing mechanisms should be established to fill preparedness gaps, such as a new multilateral global health security matching fund and expansion of World Bank International Development Association (IDA) allocations to include preparedness.

The Office of the United Nations (UN) Secretary-General should designate a permanent facilitator or unit for high-consequence biological events.

Countries should test their health security capacities and publish after-action reviews, at least annually.

Governments and donors should take into account countries' political and security risk factors when supporting health security capacity development.

The UN Secretary-General should call a heads-of-state-level summit by 2021 on biological threats including a focus on financing and emergency response.

Governments and international organizations should develop the capabilities to address fast-moving pandemic threats.

Governments should include measurable biosecurity and biosafety benchmarks in national health security strategies and track progress on an annual basis.

A dedicated international normative body should be developed to promote the early identification and reduction of biological risks associated with advances in technology.

Public and private organizations should invest a percentage of their sustainable development and health security portfolios in the area of biosecurity.

Funders and researchers should provide incentives to identify and reduce biological risks associated with advances in technology and should invest in technical innovations that can improve biosecurity.

Leaders should prioritize the development of operational linkages between security and public health authorities for biological crises.

Countries and international organizations should prioritize the development of national biosurveillance capabilities and a global biosurveillance architecture.

Countries should test their health security capacities and publish after-action reviews, at least annually. By holding annual simulation exercises, countries will show commitment to a functioning system. By publishing after-action reviews, countries can transparently demonstrate that their response capabilities will function in a crisis and can identify areas for improvement.

Health security financing, evaluations, and planning should prioritize functional capability and regular exercises.

Findings	Data Highlights
<p>Most countries have not allocated funding from national budgets to fill identified preparedness gaps.</p>	<ul style="list-style-type: none"> • 5% score in the top tier for financing • One country, Liberia, has published a description of specific funding from its national budget for gaps identified in existing assessments and/or national action plans • 10% show evidence of senior leaders' commitment to improve local or global health security capacity
<p>More than half of countries face major political and security risks that could undermine national capability to counter biological threats.</p>	<ul style="list-style-type: none"> • Higher overall score: Countries with effective governance and political systems • 55% score in the bottom and middle tiers for political and security risks indicators • 15% score in the highest tier for public confidence in government • 23% score in the top tier for political system and government effectiveness, representing approximately 14% of the global population
<p>Most countries lack foundational health systems capacities vital for epidemic and pandemic response.</p>	<ul style="list-style-type: none"> • Lowest scoring category: for health systems, average score of 26.4; 131 countries in the bottom tier; weaknesses among even high-income countries • 27% demonstrate the existence of an updated health workforce strategy • 3% show a public commitment to prioritizing healthcare services for healthcare workers who become sick as a result of participating in a public health response • Low scores: physician and nurse/midwife density per 100,000 population • 11% show plans to dispense medical countermeasures during health emergencies
<p>Coordination and training are inadequate among veterinary, wildlife, and public health professionals and policymakers.</p>	<ul style="list-style-type: none"> • 30% demonstrate existence of mechanisms for sharing data among relevant ministries for human, animal, and wildlife surveillance • 8% demonstrate a cross-ministerial unit dedicated to zoonotic disease • 51% offer field epidemiological training programs that explicitly include animal health professionals • 62% have not submitted a report to the World Organisation for Animal Health on the incidence of human cases of zoonotic diseases for the past calendar year
<p>Improving country compliance with international health and security norms is essential.</p>	<ul style="list-style-type: none"> • <50% have submitted Confidence-Building Measures for the Biological Weapons Convention (BWC) in the past three years • 30% score well for UN Security Council Resolution (UNSCR) 1540 implementation measures related to legal frameworks and enforcement for countering biological weapons • 5% have in place a publicly available plan or policy for sharing genetic data, clinical specimens, and/or isolated biological materials that extends beyond influenza • 31% do not show evidence of a cross-border agreement on public health emergency response • 45% have conducted and published a WHO Joint External Evaluation (JEE) or precursor evaluation

RECOMMENDATIONS

Health security preparedness financing should be tracked by a specific, globally recognized entity and briefed annually to heads of state.

Domestic financing for health security should be urgently increased, made transparent, and tied to benchmarks within national action plans.

Decision makers should create new health security preparedness financing mechanisms that incentivize measurable improvements, such as a new multilateral global health security matching fund, and expansion of IDA allocations to include preparedness.

International leaders should examine the availability of financing to support rapid and complete outbreak response. The UN should track and publish outbreak-related costs and contributions.

Plans should be developed to assist countries with challenging risk environments and to bolster preparedness in countries bordering those at increased risk.

National governments and donors should assess political and security risk factors when making resources available to support capacity development.

The UN Security Council should urgently convene a series of meetings aimed at the development of rapid response capabilities, strategies, workforce, and protections necessary for outbreaks that originate in or spread to countries with high political or security risks.

Decision makers should measure and take into account health system capabilities as an integral part of all health security planning, investments, and financing strategies.

Leaders should take steps to build and maintain robust healthcare and public health workforces that play a major role in biological crises.

National Action Plans for Health Security (NAPHS) should take into account specific benchmarks to improve and finance the overall health system and its workforce.

National public and animal health authorities should coordinate during the development of NAPHS and should incorporate a One Health approach as part of pandemic planning and national disaster preparedness and response efforts.

Countries should identify an agency and grant it authority to coordinate training and information sharing among human, animal, and environmental health professionals for outbreak preparedness and response.

Decision makers should consider infectious disease risks when developing policies and plans related to climate change, land use, and urban planning.

Countries should regularly undergo and publish a WHO JEE to increase transparency around global health security capacities and capabilities.

Countries should establish national and regional protocols for rapidly sharing genetic materials and specimens during public health emergencies.

National health authorities should develop epidemic- and pandemic-specific preparedness and response strategies as part of routine disaster and broader national security planning efforts.



Photo by: Anna Schroll/Fotogloria/Universal Images Group via Getty Images

GHS Index Map and Results

Full rankings, overall results, and results by category are outlined on the following pages.

Visit www.ghsindex.org for full data sets, the complete list of scores, country pages summarizing results, data sources for each question by country, and justifications for the score for each question. The Excel spreadsheet data model is also available for download.

The website also features a score simulator with the ability to adjust scores, compare results, and view correlations between scores and other data sets and indices.

The Global Health Security (GHS) Index analysis finds no country is fully prepared for epidemics or pandemics. Collectively, international preparedness is weak. Many countries do not show evidence of the health security capacities and capabilities that are needed to prevent, detect, and respond to significant infectious disease outbreaks.

The average overall GHS Index score is

40.2

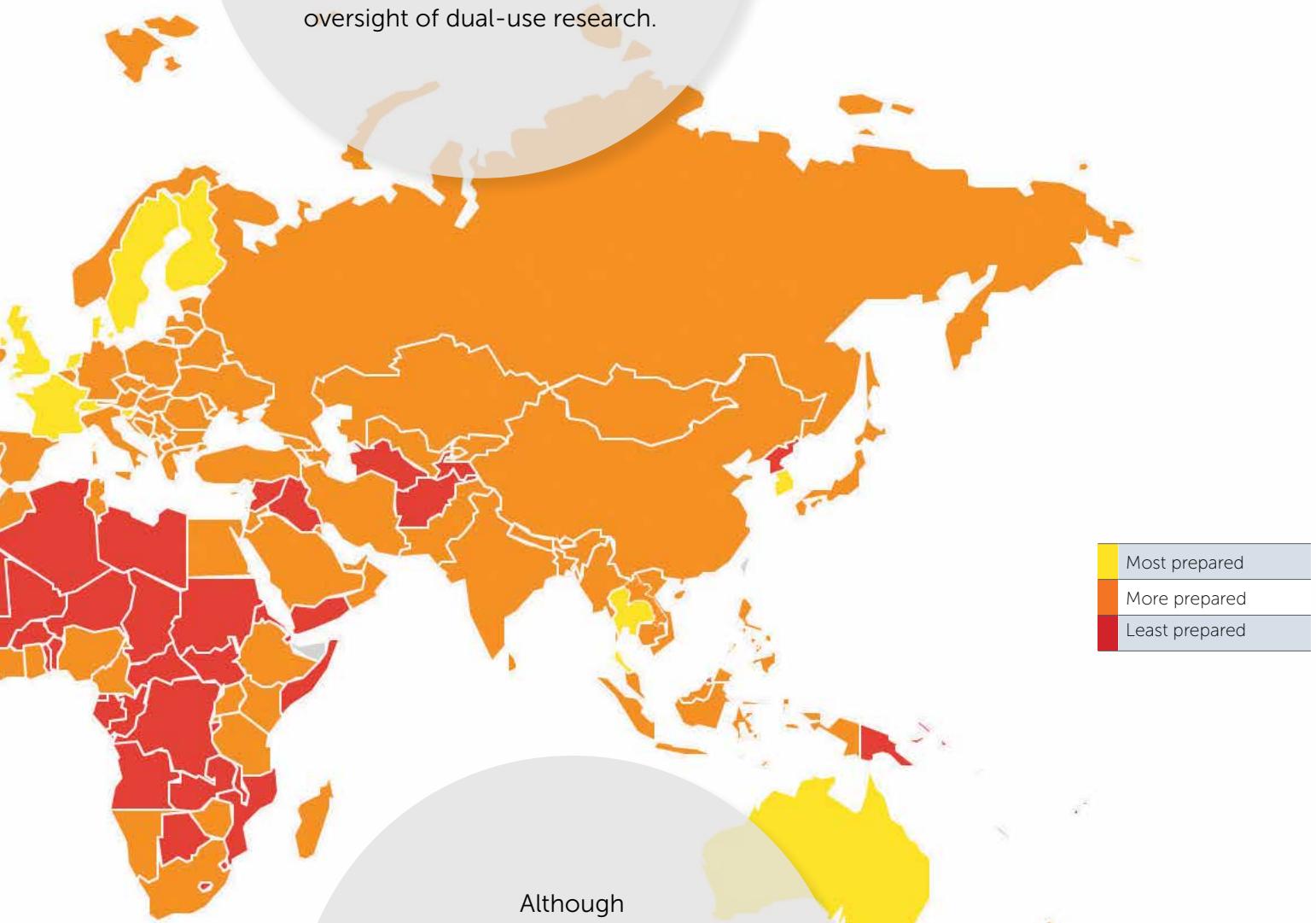
out of a possible 100. While high-income countries report an average score of 51.9, the Index shows that collectively, international preparedness for epidemics and pandemics remains very weak.

GHS INDEX MAP

At least

75%

of countries receive low scores
on globally catastrophic
biological risk-related indicators,
the greatest vulnerability being
oversight of dual-use research.



Although

86%

of countries invest local or
donor funds in health security,
few countries pay for health
security gap assessments and
action plans out of national budgets.

OVERALL SCORE

Rank	Score	
1	United States	83.5
2	United Kingdom	77.9
3	Netherlands	75.6
4	Australia	75.5
5	Canada	75.3
6	Thailand	73.2
7	Sweden	72.1
8	Denmark	70.4
9	South Korea	70.2
10	Finland	68.7
11	France	68.2
12	Slovenia	67.2
13	Switzerland	67.0
14	Germany	66.0
15	Spain	65.9
16	Norway	64.6
17	Latvia	62.9
18	Malaysia	62.2
19	Belgium	61.0
20	Portugal	60.3
21	Japan	59.8
22	Brazil	59.7
23	Ireland	59.0
24	Singapore	58.7
25	Argentina	58.6
26	Austria	58.5
27	Chile	58.3
28	Mexico	57.6
29	Estonia	57.0
30	Indonesia	56.6
31	Italy	56.2
32	Poland	55.4
33	Lithuania	55.0
34	South Africa	54.8
35	Hungary	54.0
35	New Zealand	54.0
37	Greece	53.8
38	Croatia	53.3
39	Albania	52.9
40	Turkey	52.4

1. PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS

Rank	Score	
1	United States	83.1
2	Sweden	81.1
3	Thailand	75.7
4	Netherlands	73.7
5	Denmark	72.9
6	France	71.2
7	Canada	70.0
8	Australia	68.9
9	Finland	68.5
10	United Kingdom	68.3
11	Norway	68.2
12	Slovenia	67.0
13	Germany	66.5
14	Ireland	63.9
15	Belgium	63.5
16	Brazil	59.2
17	Kazakhstan	58.8
18	Austria	57.4
19	South Korea	57.3
20	Turkey	56.9
21	Armenia	56.7
22	Hungary	56.4
23	Chile	56.2
23	Singapore	56.2
25	Latvia	56.0
26	Croatia	55.2
27	New Zealand	55.0
28	Greece	54.2
29	Ecuador	53.9
30	Slovakia	53.5
31	Georgia	53.2
32	Spain	52.9
33	Portugal	52.8
34	Switzerland	52.7
35	Malaysia	51.4
36	Czech Republic	51.1
37	Poland	50.9
38	Indonesia	50.2
39	Vietnam	49.5
40	Japan	49.3

2. EARLY DETECTION & REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

Rank	Score	
1	United States	98.2
2	Australia	97.3
2	Latvia	97.3
4	Canada	96.4
5	South Korea	92.1
6	United Kingdom	87.3
7	Denmark	86.0
7	Netherlands	86.0
7	Sweden	86.0
10	Germany	84.6
11	Spain	83.0
12	Brazil	82.4
13	Lithuania	81.5
13	South Africa	81.5
15	Thailand	81.0
16	Italy	78.5
17	Greece	78.4
18	Ireland	78.0
19	Estonia	77.6
20	Mongolia	77.3
21	France	75.3
22	Georgia	75.0
23	Argentina	74.9
24	Saudi Arabia	74.4
25	Albania	74.3
26	El Salvador	73.9
27	Slovenia	73.7
28	Austria	73.2
28	Malaysia	73.2
30	Chile	72.7
31	Croatia	72.3
32	Ecuador	71.2
32	Mexico	71.2
34	Laos	70.4
35	Japan	70.1
36	Kenya	68.6
37	Indonesia	68.1
38	Zimbabwe	65.6
39	Kyrgyz Republic	64.7
40	Singapore	64.5

3. RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC

Rank	Score	
1	United Kingdom	91.9
2	United States	79.7
3	Switzerland	79.3
4	Netherlands	79.1
5	Thailand	78.6
6	South Korea	71.5
7	Finland	69.2
8	Portugal	67.7
9	Brazil	67.1
10	Australia	65.9
11	Singapore	64.6
12	Slovenia	63.3
13	France	62.9
14	Sweden	62.8
15	Spain	61.9
16	Malaysia	61.3
17	Canada	60.7
18	Chile	60.2
19	Denmark	58.4
20	Norway	58.2
21	New Zealand	58.1
22	Madagascar	57.8
23	South Africa	57.7
24	Micronesia	56.9
25	Uganda	56.5
26	Armenia	55.5
27	Serbia	55.1
28	Germany	54.8
29	Latvia	54.7
30	Indonesia	54.3
31	Japan	53.6
32	India	52.4
33	Hungary	52.2
34	Albania	52.0
34	Laos	52.0
36	Bosnia and Herzegovina	51.8
37	Peru	51.7
38	Morocco	51.5
39	Mexico	50.8
40	Argentina	50.6

4. SUFFICIENT & ROBUST HEALTH SYSTEM TO TREAT THE SICK & PROTECT HEALTH WORKERS

Rank		Score
1	United States	73.8
2	Thailand	70.5
3	Netherlands	70.2
4	Canada	67.7
5	Denmark	63.8
6	Australia	63.5
7	Switzerland	62.5
8	France	60.9
9	Finland	60.8
10	Belgium	60.5
11	United Kingdom	59.8
12	Spain	59.6
13	South Korea	58.7
14	Norway	58.5
15	Malaysia	57.1
16	Serbia	56.6
17	Portugal	55.0
18	Argentina	54.9
18	Slovenia	54.9
20	Sweden	49.3
21	Poland	48.9
22	Germany	48.2
23	Latvia	47.3
24	Mexico	46.9
25	Austria	46.6
25	Japan	46.6
27	Croatia	46.5
28	Iceland	46.4
29	Nicaragua	45.9
30	China	45.7
30	Turkey	45.7
32	New Zealand	45.2
33	Brazil	45.0
33	Peru	45.0
35	Saudi Arabia	44.8
36	India	42.7
37	Israel	42.2
38	Singapore	41.4
39	Bulgaria	41.0
40	Belarus	40.6

5. COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING AND ADHERENCE TO NORMS

Rank		Score
1	United States	85.3
2	United Kingdom	81.2
3	Australia	77.0
4	Finland	75.4
5	Canada	74.7
6	Mexico	73.9
7	Indonesia	72.5
8	Lithuania	72.1
8	Slovenia	72.1
10	Liberia	71.5
11	Sweden	71.3
12	Thailand	70.9
13	Japan	70.0
14	Argentina	68.8
15	Estonia	67.6
16	Kenya	67.1
17	Ethiopia	65.8
18	Switzerland	65.6
19	Uganda	65.4
20	Kyrgyz Republic	64.8
21	Vietnam	64.6
22	Norway	64.4
23	South Korea	64.3
23	Turkey	64.3
25	United Arab Emirates	63.4
26	Peru	63.0
26	Portugal	63.0
28	Denmark	62.6
29	Germany	61.9
29	Italy	61.9
31	Bulgaria	61.5
32	Netherlands	61.1
32	Spain	61.1
34	Uzbekistan	60.5
35	Colombia	60.1
36	Cambodia	60.0
37	Cameroon	59.9
38	Belgium	59.7
39	New Zealand	59.4
40	Myanmar	59.1

6. OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

Rank		Score
1	Liechtenstein	87.9
2	Norway	87.1
3	Switzerland	86.2
4	Luxembourg	84.7
5	Austria	84.6
6	Sweden	84.5
7	Andorra	83.5
8	Monaco	83.1
9	France	83.0
10	Canada	82.7
11	Germany	82.3
12	Netherlands	81.7
13	Iceland	81.2
14	Finland	81.1
15	Singapore	80.9
16	San Marino	80.5
17	Denmark	80.3
18	Australia	79.4
19	Belgium	78.2
19	United States	78.2
21	Ireland	77.4
22	Portugal	77.3
23	New Zealand	77.2
24	Spain	77.1
25	Uruguay	74.8
26	United Kingdom	74.7
27	South Korea	74.1
28	Czech Republic	74.0
29	Slovenia	73.7
30	Estonia	73.3
31	United Arab Emirates	72.4
32	Malta	72.3
33	Malaysia	72.0
34	Costa Rica	71.7
34	Japan	71.7
36	Slovakia	71.5
37	Seychelles	71.1
38	Chile	70.1
39	Barbados	69.9
40	Cyprus	69.6

GHS INDEX RESULTS

All data are normalized to a scale of 0 to 100, where 100 = best health security conditions.

Most prepared

More prepared

Least prepared

OVERALL SCORE

Rank	Score	
41	Serbia	52.3
42	Czech Republic	52.0
42	Georgia	52.0
44	Armenia	50.2
45	Ecuador	50.1
46	Mongolia	49.5
47	Kyrgyz Republic	49.3
47	Saudi Arabia	49.3
49	Peru	49.2
50	Vietnam	49.1
51	China	48.2
52	Slovakia	47.9
53	Philippines	47.6
54	Israel	47.3
55	Kenya	47.1
56	United Arab Emirates	46.7
57	India	46.5
58	Iceland	46.3
59	Kuwait	46.1
60	Romania	45.8
61	Bulgaria	45.6
62	Costa Rica	45.1
63	Russia	44.3
63	Uganda	44.3
65	Colombia	44.2
65	El Salvador	44.2
67	Luxembourg	43.8
68	Montenegro	43.7
68	Morocco	43.7
68	Panama	43.7
71	Liechtenstein	43.5
72	Myanmar	43.4
73	Laos	43.1
73	Lebanon	43.1
73	Nicaragua	43.1
73	Oman	43.1
77	Cyprus	43.0
78	Moldova	42.9
79	Bosnia and Herzegovina	42.8
80	Jordan	42.1

1. PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS

Rank	Score	
40	United Arab Emirates	49.3
42	Romania	48.9
43	Serbia	48.8
44	Estonia	47.6
45	Italy	47.5
46	Moldova	46.5
47	Cyprus	46.4
48	Kenya	45.9
49	Mexico	45.5
50	China	45.0
51	South Africa	44.8
52	Iran	44.7
53	Costa Rica	44.2
54	Bolivia	44.0
54	Israel	44.0
54	Uruguay	44.0
57	Albania	43.8
58	Nepal	43.7
59	Lithuania	43.5
60	Peru	43.2
61	Liechtenstein	43.1
62	Russia	42.9
63	Uganda	42.7
64	Uzbekistan	42.6
65	Nicaragua	41.7
66	Argentina	41.4
66	Cuba	41.4
68	Kuwait	40.9
69	Panama	40.5
70	Paraguay	39.5
71	Philippines	38.5
72	Ukraine	38.1
73	Bulgaria	37.6
73	Mongolia	37.6
75	Colombia	37.2
76	North Macedonia	37.0
77	Ethiopia	36.8
78	Bosnia and Herzegovina	36.7
79	Egypt	36.5
79	Montenegro	36.5

2. EARLY DETECTION & REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

Rank	Score	
41	Philippines	63.6
42	Belgium	62.5
43	Lebanon	62.0
44	Poland	61.7
45	Finland	61.6
46	Armenia	60.8
47	Myanmar	59.2
48	Switzerland	59.1
49	Norway	58.6
50	Cambodia	57.7
51	Vietnam	57.4
52	Guinea	57.2
53	Morocco	56.8
54	Costa Rica	56.0
55	Hungary	55.5
56	Montenegro	55.4
57	Bulgaria	53.3
58	Israel	52.4
59	Bangladesh	50.9
60	Czech Republic	50.7
61	Portugal	50.5
62	Uganda	50.3
63	Guatemala	50.0
64	China	48.5
65	Haiti	48.3
66	Kuwait	47.5
67	India	47.4
68	Togo	46.8
69	Serbia	46.2
70	Namibia	46.0
70	Slovakia	46.0
72	Bahrain	45.8
72	Sierra Leone	45.8
74	Turkey	45.6
75	Azerbaijan	45.0
76	Cyprus	44.9
77	Afghanistan	44.8
78	Nigeria	44.6
78	Panama	44.6
80	Côte d'Ivoire	44.5

3. RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC

Rank	Score	
41	Myanmar	50.4
42	Kuwait	50.2
43	Russia	50.1
44	Kyrgyz Republic	49.9
45	United Arab Emirates	49.7
46	Turkey	49.0
47	China	48.6
48	Qatar	48.0
49	Lebanon	47.9
50	Jordan	47.8
51	Italy	47.5
51	Poland	47.5
53	Belgium	47.3
53	Dominican Republic	47.3
53	Suriname	47.3
56	Estonia	47.0
57	Belarus	46.6
57	Central African Republic	46.6
57	Czech Republic	46.6
60	Panama	46.4
61	Senegal	45.4
62	Ireland	45.1
63	Egypt	45.0
64	Sierra Leone	44.8
65	Ethiopia	44.7
66	Greece	44.0
66	Iceland	44.0
68	Nigeria	43.8
68	Philippines	43.8
70	Colombia	43.5
71	Bahrain	43.2
71	Trinidad and Tobago	43.2
73	Vietnam	43.0
74	Tajikistan	42.9
75	St. Lucia	42.4
76	Austria	42.3
77	El Salvador	42.1
78	Bhutan	42.0
79	Nepal	41.9
80	Oman	41.6

4. SUFFICIENT & ROBUST HEALTH SYSTEM TO TREAT THE SICK & PROTECT HEALTH WORKERS

Rank	Score	
41	Ireland	40.2
42	Indonesia	39.4
43	Chile	39.3
44	Qatar	38.8
45	Bosnia and Herzegovina	38.3
45	Georgia	38.3
47	Philippines	38.2
48	Luxembourg	37.9
48	Slovakia	37.9
50	Greece	37.6
50	Russia	37.6
52	Cuba	37.4
52	Czech Republic	37.4
54	Italy	36.8
55	Romania	36.7
56	Hungary	36.6
57	Kuwait	36.5
58	Moldova	36.4
59	Albania	35.9
60	Ecuador	35.2
61	Panama	35.1
62	Iran	34.6
63	Lithuania	34.4
64	Colombia	34.3
65	South Africa	33.0
66	Estonia	31.6
67	Liechtenstein	31.1
68	Monaco	31.0
69	Mongolia	30.8
70	Kyrgyz Republic	29.8
71	Montenegro	29.5
71	Morocco	29.5
73	Ethiopia	29.0
74	Vietnam	28.3
75	Paraguay	28.2
76	Nepal	28.1
77	Kazakhstan	28.0
78	Bhutan	27.9
79	Jordan	27.8
80	Bahrain	27.7

5. COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING AND ADHERENCE TO NORMS

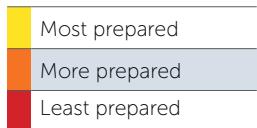
Rank	Score	
41	Czech Republic	58.9
41	Hungary	58.9
41	Poland	58.9
44	France	58.6
45	Malaysia	58.5
46	St. Vincent and The Grenadines	58.0
47	Senegal	57.0
48	Liechtenstein	56.9
49	Congo (Brazzaville)	56.8
50	Moldova	56.7
50	Nigeria	56.7
52	Afghanistan	56.3
53	Georgia	56.0
53	Oman	56.0
55	Madagascar	55.4
55	Tanzania	55.4
57	Antigua and Barbuda	55.1
57	Trinidad and Tobago	55.1
57	Ukraine	55.1
60	St. Lucia	54.7
61	Benin	53.6
61	Côte d'Ivoire	53.6
63	Montenegro	53.5
64	Mali	53.2
65	Albania	53.0
66	Austria	52.8
66	Ireland	52.8
66	Kazakhstan	52.8
66	Luxembourg	52.8
66	Sierra Leone	52.8
66	Slovakia	52.8
72	Mongolia	52.6
72	Russia	52.6
74	Bangladesh	52.5
75	Romania	52.4
76	Nicaragua	51.8
77	Comoros	51.6
78	Chile	51.5
79	Latvia	51.1
80	Malawi	50.7

6. OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

Rank	Score	
41	Israel	68.8
42	Croatia	68.2
42	Hungary	68.2
44	Qatar	68.0
45	Poland	67.9
46	Lithuania	67.8
47	Cabo Verde	67.4
48	Latvia	67.2
49	Brunei	66.7
50	Bulgaria	66.3
51	Mauritius	66.2
52	Samoa	66.1
53	Oman	65.7
53	Romania	65.7
55	Italy	65.5
56	Antigua and Barbuda	65.2
57	St. Kitts and Nevis	64.8
58	China	64.4
58	Trinidad and Tobago	64.4
60	Panama	63.8
61	Grenada	62.9
62	Botswana	62.4
63	St. Lucia	62.1
64	South Africa	61.8
65	St. Vincent and The Grenadines	61.7
66	Kuwait	61.5
67	Bahamas	61.4
68	Jamaica	61.2
69	Mongolia	60.8
70	Argentina	60.0
71	Saudi Arabia	59.7
72	Kazakhstan	59.5
73	Dominican Republic	59.3
74	Serbia	59.2
75	Fiji	59.1
76	Tonga	59.0
77	Montenegro	58.8
78	Tuvalu	58.7
79	Maldives	58.3
80	Greece	58.2

GHS INDEX RESULTS

All data are normalized to a scale of 0 to 100, where 100 = best health security conditions.



OVERALL SCORE

Rank		Score
81	Uruguay	41.3
82	Qatar	41.2
83	Kazakhstan	40.7
84	Ethiopia	40.6
85	Bhutan	40.3
	AVERAGE	40.2
86	Madagascar	40.1
87	Egypt	39.9
88	Bahrain	39.4
89	Cambodia	39.2
90	North Macedonia	39.1
91	Dominican Republic	38.3
92	Sierra Leone	38.2
92	Zimbabwe	38.2
94	Ukraine	38.0
95	Senegal	37.9
96	Nigeria	37.8
97	Iran	37.7
98	Malta	37.3
99	Trinidad and Tobago	36.6
100	Suriname	36.5
101	Tanzania	36.4
102	Bolivia	35.8
103	Paraguay	35.7
104	Namibia	35.6
105	Côte d'Ivoire	35.5
105	Ghana	35.5
105	Pakistan	35.5
108	Belarus	35.3
108	St. Lucia	35.3
110	Cuba	35.2
111	Liberia	35.1
111	Nepal	35.1
113	Bangladesh	35.0
114	Mauritius	34.9
115	Cameroon	34.4
116	Uzbekistan	34.3
117	Azerbaijan	34.2

1. PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS

Rank		Score
81	Bahrain	36.0
82	Eswatini (Swaziland)	35.7
83	Bhutan	35.5
84	Iceland	35.3
84	Oman	35.3
86	Malta	35.0
87	India	34.9
	AVERAGE	34.8
88	Morocco	34.6
89	Saudi Arabia	34.3
90	Rwanda	33.8
91	Tanzania	33.5
92	Barbados	33.3
93	Qatar	33.1
94	Niger	32.5
95	Ghana	32.2
96	Namibia	32.0
97	Jordan	31.8
97	Sudan	31.8
99	Tunisia	31.7
100	Haiti	31.5
101	Zimbabwe	31.4
102	Luxembourg	31.0
102	Turkmenistan	31.0
104	Azerbaijan	30.8
105	Dominican Republic	30.5
106	Myanmar	30.3
107	Madagascar	30.1
108	Belize	30.0
109	Kyrgyz Republic	29.7
110	Cambodia	28.6
111	Cameroon	28.2
112	Trinidad and Tobago	28.1
113	Andorra	27.9
113	Cabo Verde	27.9
113	Guyana	27.9
116	Bangladesh	27.3
116	Côte d'Ivoire	27.3
116	Lebanon	27.3
116	Mauritius	27.3

2. EARLY DETECTION & REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

Rank		Score
81	Niger	44.4
82	Sri Lanka	43.0
83	Jordan	42.9
83	Moldova	42.9
85	Bhutan	42.8
85	Romania	42.8
87	Mauritius	42.3
88	Iraq	42.2
89	Tanzania	42.0
90	Madagascar	41.9
	AVERAGE	41.9
91	Bosnia and Herzegovina	41.7
91	Colombia	41.7
91	Luxembourg	41.7
91	North Macedonia	41.7
91	Pakistan	41.7
96	Egypt	41.5
97	Oman	41.1
98	Ghana	40.5
99	Nicaragua	39.9
100	Mauritania	39.5
101	Turkmenistan	38.6
102	Peru	38.3
103	Iran	37.7
104	Iceland	37.2
105	Dominican Republic	37.1
106	Gambia	36.9
107	New Zealand	36.7
107	Suriname	36.7
109	Chad	36.5
109	Ukraine	36.5
111	Libya	36.0
111	Rwanda	36.0
113	Cameroon	35.6
114	Senegal	35.1
115	Paraguay	34.6
116	Russia	34.1
117	San Marino	33.9

3. RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC

Rank		Score
81	Uruguay	41.3
82	Liberia	40.5
83	Maldives	40.2
84	Israel	39.9
85	Ecuador	39.5
86	Nicaragua	39.2
87	Tunisia	39.1
88	Pakistan	38.7
	AVERAGE	38.4
89	Burkina Faso	38.0
90	Mongolia	37.8
91	Sudan	37.3
92	Georgia	37.1
92	Kenya	37.1
94	Tanzania	36.8
95	Cambodia	36.7
96	Costa Rica	36.6
97	Guyana	36.2
98	Romania	35.3
99	Mauritius	34.9
100	Papua New Guinea	34.8
100	Ukraine	34.8
102	Liechtenstein	34.6
103	Chad	34.5
104	Gambia	34.2
105	Benin	34.1
105	Slovakia	34.1
107	Cyprus	33.9
107	Lithuania	33.9
109	Iran	33.7
110	Brunei	33.4
111	Lesotho	33.2
112	North Macedonia	33.1
113	Cabo Verde	32.7
114	Saudi Arabia	32.6
115	Croatia	32.4
116	Montenegro	32.1
117	Rwanda	31.9

4. SUFFICIENT & ROBUST HEALTH SYSTEM TO TREAT THE SICK & PROTECT HEALTH WORKERS

Rank	Score
AVERAGE	26.4
81 Armenia	25.7
82 North Macedonia	25.4
82 Oman	25.4
84 Sierra Leone	25.3
85 El Salvador	25.2
86 Costa Rica	24.8
87 Syria	24.4
88 Brunei	24.2
89 Rwanda	24.1
89 Uruguay	24.1
91 Tunisia	24.0
92 Lebanon	23.8
93 Trinidad and Tobago	23.7
94 Malta	23.6
95 Gambia	23.5
96 Ghana	23.4
97 Ukraine	23.0
98 United Arab Emirates	22.9
99 Cyprus	21.9
99 Niger	21.9
101 Cameroon	21.4
102 Afghanistan	21.0
103 Kenya	20.7
104 Lesotho	20.6
105 Tajikistan	20.5
106 Zambia	20.3
107 Liberia	19.9
107 Nigeria	19.9
107 Pakistan	19.9
107 Seychelles	19.9
111 Myanmar	19.5
112 Laos	19.4
113 Madagascar	19.2
114 St. Vincent and The Grenadines	19.0
115 Micronesia	18.8
116 Senegal	18.5
117 Maldives	18.1
118 Azerbaijan	17.9
119 Côte d'Ivoire	17.1

5. COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING AND ADHERENCE TO NORMS

Rank	Score
81 Saudi Arabia	50.6
82 El Salvador	50.5
83 Armenia	50.1
84 Cuba	49.8
84 Philippines	49.8
86 Pakistan	49.7
86 Serbia	49.7
88 Belize	49.3
88 Dominica	49.3
88 Guyana	49.3
88 Lebanon	49.3
92 Croatia	49.1
92 Cyprus	49.1
92 Greece	49.1
92 Malta	49.1
96 Jordan	48.6
97 Bolivia	48.5
AVERAGE	48.5
98 Haiti	48.4
99 Guinea	47.8
100 India	47.7
101 Singapore	47.3
102 Seychelles	47.1
103 Eswatini (Swaziland)	46.6
104 Egypt	46.4
104 Grenada	46.4
104 St. Kitts and Nevis	46.4
107 Botswana	46.3
107 South Africa	46.3
107 Togo	46.3
110 Chad	46.2
111 Bahamas	46.0
111 Barbados	46.0
113 Congo (Democratic Republic)	45.9
113 Laos	45.9
113 Lesotho	45.9
113 Zimbabwe	45.9
117 Maldives	45.5
117 Niger	45.5

6. OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

Rank	Score
81 Niue	57.9
82 Bahrain	57.8
82 Cuba	57.8
84 North Macedonia	57.7
84 Peru	57.7
86 Egypt	57.5
87 Vanuatu	57.4
88 Ecuador	57.1
89 Mexico	57.0
90 Bhutan	56.9
91 Sri Lanka	56.7
92 Turkey	56.5
93 Thailand	56.4
94 Brazil	56.2
94 Palau	56.2
96 Kyrgyz Republic	56.1
97 Morocco	55.9
97 Paraguay	55.9
99 Jordan	55.8
100 Albania	55.7
100 Tunisia	55.7
AVERAGE	55.0
102 Namibia	54.7
103 India	54.4
104 Azerbaijan	54.2
105 Dominica	54.0
106 Indonesia	53.7
107 Vietnam	53.4
108 Micronesia	53.1
109 Belarus	53.0
109 Belize	53.0
111 Suriname	52.7
112 Marshall Islands	52.3
113 Algeria	51.4
113 Georgia	51.4
113 Russia	51.4
116 Colombia	51.0
116 Ghana	51.0

GHS INDEX RESULTS

All data are normalized to a scale of 0 to 100, where 100 = best health security conditions.

	Most prepared
	More prepared
	Least prepared

OVERALL SCORE

Rank	Score	
117	Gambia	34.2
117	Rwanda	34.2
120	Sri Lanka	33.9
121	Maldives	33.8
122	Tunisia	33.7
123	St. Vincent and The Grenadines	33.0
124	Micronesia	32.8
125	Guatemala	32.7
125	Guinea	32.7
125	Monaco	32.7
128	Brunei	32.6
129	Togo	32.5
130	Afghanistan	32.3
130	Tajikistan	32.3
132	Niger	32.2
133	Barbados	31.9
133	Seychelles	31.9
135	Belize	31.8
135	Turkmenistan	31.8
137	Guyana	31.7
138	Haiti	31.5
139	Botswana	31.1
139	San Marino	31.1
139	Eswatini (Swaziland)	31.1
142	Bahamas	30.6
143	Andorra	30.5
144	Lesotho	30.2
145	Burkina Faso	30.1
146	Cabo Verde	29.3
147	Antigua and Barbuda	29.0
147	Jamaica	29.0
147	Mali	29.0
150	Benin	28.8
150	Chad	28.8
152	Zambia	28.7
153	Mozambique	28.1
154	Malawi	28.0
155	Papua New Guinea	27.8
156	Honduras	27.6

1. PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS

Rank	Score	
120	Guinea	27.0
121	Tajikistan	26.7
122	Mozambique	26.5
123	Nigeria	26.3
124	Algeria	25.7
125	Malawi	25.5
126	Senegal	25.4
127	Burundi	25.1
128	Sierra Leone	25.0
129	Brunei	24.8
130	Bahamas	24.7
131	Fiji	24.6
132	Vanuatu	24.5
132	Zambia	24.5
134	Lesotho	24.4
135	Sri Lanka	24.2
136	Pakistan	24.1
137	Angola	24.0
137	Congo (Democratic Republic)	24.0
139	Togo	23.7
140	Afghanistan	23.5
140	Venezuela	23.5
142	Eritrea	23.4
142	Mali	23.4
144	Suriname	23.3
145	Chad	23.2
145	Libya	23.2
147	St. Lucia	22.8
148	South Sudan	22.6
149	San Marino	22.3
150	El Salvador	22.1
150	Iraq	22.1
152	Botswana	22.0
152	Gambia	22.0
154	Maldives	21.8
155	Honduras	21.6
156	Guatemala	21.2
157	Micronesia	21.0

2. EARLY DETECTION & REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

Rank	Score	
118	Ethiopia	33.7
119	Uruguay	33.5
120	Seychelles	33.4
121	Burkina Faso	33.3
122	Bolivia	33.1
123	Malta	32.9
124	Qatar	32.7
125	Papua New Guinea	31.8
126	United Arab Emirates	31.6
127	Brunei	30.5
128	Belize	30.4
129	St. Lucia	30.3
130	Mozambique	29.3
131	Liberia	29.1
132	Belarus	28.9
133	Botswana	28.2
133	Kazakhstan	28.2
135	Honduras	27.7
136	Tunisia	26.3
137	Timor-Leste	25.7
138	Maldives	25.5
138	Mali	25.5
138	Eswatini (Swaziland)	25.5
141	Congo (Democratic Republic)	25.1
142	Jamaica	24.3
143	Benin	24.2
144	Tajikistan	24.1
145	Guinea-Bissau	23.4
146	Malawi	23.3
146	Monaco	23.3
148	Comoros	23.2
149	Liechtenstein	22.9
150	Nepal	22.0
151	Zambia	21.9
152	Bahamas	21.8
153	Somalia	21.5
154	St. Vincent and The Grenadines	20.6
155	Guyana	20.3
156	Uzbekistan	19.4

3. RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC

Rank	Score	
118	Ghana	31.5
119	Congo (Democratic Republic)	31.3
120	Moldova	31.1
121	Bahamas	30.9
121	Namibia	30.9
123	Andorra	30.5
124	Togo	30.4
125	Timor-Leste	30.2
126	Zimbabwe	30.1
127	Côte d'Ivoire	29.7
128	Cameroon	29.5
128	Mali	29.5
130	Eswatini (Swaziland)	29.3
131	Bolivia	29.2
131	St. Vincent and The Grenadines	29.2
133	Samoa	28.9
134	Zambia	28.6
135	Burundi	28.4
135	Grenada	28.4
137	Fiji	28.3
138	Uzbekistan	27.8
139	Luxembourg	27.3
140	Barbados	27.2
141	Comoros	27.1
142	Paraguay	26.8
143	Kazakhstan	26.6
144	Honduras	26.5
145	Sri Lanka	26.4
146	St. Kitts and Nevis	26.2
147	Monaco	26.0
147	Turkmenistan	26.0
149	Cuba	25.9
149	Nauru	25.9
151	Azerbaijan	25.5
151	Belize	25.5
153	Tonga	25.1
154	Guatemala	25.0
155	Vanuatu	24.8
156	Jamaica	24.7

4. SUFFICIENT & ROBUST HEALTH SYSTEM TO TREAT THE SICK & PROTECT HEALTH WORKERS

Rank	Score	
120	Mauritania	17.0
120	Mozambique	17.0
122	Sri Lanka	16.9
123	Suriname	16.5
124	San Marino	16.2
125	Cabo Verde	16.1
125	Dominican Republic	16.1
127	Uzbekistan	16.0
128	Egypt	15.7
129	Malawi	15.3
130	Mauritius	15.1
131	Bolivia	14.9
132	Bangladesh	14.7
132	Zimbabwe	14.7
134	Turkmenistan	14.4
135	Cook Islands	14.3
135	Sudan	14.3
137	South Sudan	13.6
138	Botswana	13.3
139	Algeria	13.1
140	Mali	13.0
141	Venezuela	12.9
142	Central African Republic	12.8
143	Solomon Islands	12.4
144	Guyana	12.3
145	North Korea	12.2
146	Cambodia	12.0
146	Honduras	12.0
146	Nauru	12.0
146	Tuvalu	12.0
150	Congo (Democratic Republic)	11.8
150	Iraq	11.8
152	Papua New Guinea	11.6
152	Uganda	11.6
154	Palau	11.5
155	Guatemala	11.4
156	Gabon	11.2

5. COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING AND ADHERENCE TO NORMS

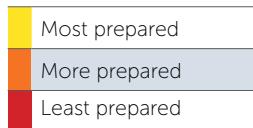
Rank	Score	
119	Burkina Faso	44.8
119	North Macedonia	44.8
119	Suriname	44.8
122	Central African Republic	44.2
122	Gambia	44.2
122	Namibia	44.2
125	Mozambique	43.8
126	Dominican Republic	43.5
126	Ecuador	43.5
128	Iceland	43.2
129	Costa Rica	43.1
129	Jamaica	43.1
131	Tajikistan	42.6
132	Guatemala	42.2
132	Kuwait	42.2
132	Venezuela	42.2
135	Brazil	41.9
136	Honduras	41.8
137	Sri Lanka	41.7
138	Israel	41.5
139	Angola	41.4
139	Papua New Guinea	41.4
141	China	40.3
141	Yemen	40.3
143	Solomon Islands	40.1
144	Eritrea	40.0
145	Bhutan	39.7
146	Turkmenistan	39.3
146	Uruguay	39.3
148	Ghana	38.0
148	Rwanda	38.0
148	Vanuatu	38.0
148	Zambia	38.0
152	Bosnia and Herzegovina	37.8
153	Burundi	37.6
153	Guinea-Bissau	37.6
153	Sudan	37.6
156	Gabon	36.5

6. OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

Rank	Score	
118	Bolivia	50.9
119	Bosnia and Herzegovina	50.8
120	Nauru	50.6
121	Cook Islands	50.5
121	Guyana	50.5
123	Armenia	50.4
124	Iran	50.3
124	Philippines	50.3
126	Guatemala	49.1
127	Eswatini (Swaziland)	48.9
128	Senegal	48.2
129	El Salvador	48.0
130	Uzbekistan	47.8
131	Gambia	47.3
132	Moldova	47.1
133	Laos	46.8
134	Lebanon	45.5
135	Turkmenistan	45.1
136	Kiribati	45.0
137	Nepal	44.7
137	Tanzania	44.7
139	São Tomé and Príncipe	44.6
140	Lesotho	44.5
141	Zambia	44.2
142	Bangladesh	44.0
142	Solomon Islands	44.0
144	Equatorial Guinea	43.6
144	Rwanda	43.6
146	Ukraine	43.3
147	Benin	42.8
147	Gabon	42.8
149	Côte d'Ivoire	42.7
149	Djibouti	42.7
151	Burkina Faso	42.6
152	Angola	42.2
153	Timor-Leste	41.5
154	Nicaragua	41.0
155	Kenya	40.7
156	Honduras	39.5

GHS INDEX RESULTS

All data are normalized to a scale of 0 to 100, where 100 = best health security conditions.



OVERALL SCORE

Rank	Score	
157	Grenada	27.5
157	Mauritania	27.5
159	Central African Republic	27.3
160	Comoros	27.2
161	Congo (Democratic Republic)	26.5
162	Samoa	26.4
163	St. Kitts and Nevis	26.2
163	Sudan	26.2
165	Vanuatu	26.1
166	Timor-Leste	26.0
167	Iraq	25.8
168	Fiji	25.7
168	Libya	25.7
170	Angola	25.2
171	Tonga	25.1
172	Dominica	24.0
173	Algeria	23.6
173	Congo (Brazzaville)	23.6
175	Djibouti	23.2
176	Venezuela	23.0
177	Burundi	22.8
178	Eritrea	22.4
179	Palau	21.9
180	South Sudan	21.7
181	Tuvalu	21.6
182	Nauru	20.8
183	Solomon Islands	20.7
184	Niue	20.5
185	Cook Islands	20.4
186	Gabon	20.0
186	Guinea-Bissau	20.0
188	Syria	19.9
189	Kiribati	19.2
190	Yemen	18.5
191	Marshall Islands	18.2
192	São Tomé and Príncipe	17.7
193	North Korea	17.5
194	Somalia	16.6
195	Equatorial Guinea	16.2

1. PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS

Rank	Score	
158	Samoa	20.2
159	Jamaica	20.1
160	St. Vincent and The Grenadines	20.0
161	Tonga	19.8
162	Belarus	19.4
163	Comoros	19.2
164	North Korea	19.0
165	Laos	18.9
166	Syria	18.4
167	Timor-Leste	18.2
168	Burkina Faso	18.0
168	Central African Republic	18.0
170	Antigua and Barbuda	17.8
171	Congo (Brazzaville)	17.6
172	Benin	16.5
173	Djibouti	16.3
174	Somalia	15.8
175	Yemen	15.1
176	Liberia	14.3
177	Guinea-Bissau	14.0
178	Tuvalu	13.1
179	Dominica	11.2
180	Monaco	11.1
181	Niue	11.0
182	Cook Islands	10.9
183	Gabon	10.8
184	Kiribati	10.7
185	Papua New Guinea	10.0
186	Mauritania	9.9
187	Seychelles	9.8
188	Nauru	9.1
189	St. Kitts and Nevis	8.7
190	Grenada	8.6
191	Solomon Islands	8.4
192	Palau	8.2
192	São Tomé and Príncipe	8.2
194	Marshall Islands	7.0
195	Equatorial Guinea	1.9

2. EARLY DETECTION & REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

Rank	Score	
157	Antigua and Barbuda	19.1
157	Barbados	19.1
159	Grenada	18.6
160	Lesotho	18.0
161	Angola	17.9
162	Central African Republic	17.7
163	Eritrea	17.2
164	Djibouti	17.0
165	Fiji	16.4
166	South Sudan	15.9
167	St. Kitts and Nevis	15.0
167	Tonga	15.0
168	Vanuatu	15.0
170	Trinidad and Tobago	14.7
171	Andorra	14.2
171	Micronesia	14.2
173	Samoa	14.1
174	Algeria	12.0
175	Burundi	11.4
176	Dominica	10.7
177	Cuba	10.5
178	Cabo Verde	9.3
179	Yemen	9.0
180	Cook Islands	8.8
180	Palau	8.8
182	Solomon Islands	8.7
182	Tuvalu	8.7
182	Venezuela	8.7
185	Congo (Brazzaville)	7.0
185	North Korea	7.0
185	Sudan	7.0
188	Gabon	6.1
189	Equatorial Guinea	4.4
189	Kiribati	4.4
189	Marshall Islands	4.4
189	Nauru	4.4
189	Niue	4.4
194	São Tomé and Príncipe	2.7
194	Syria	2.7

3. RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC

Rank	Score	
157	Palau	24.5
158	South Sudan	24.3
159	Mauritania	24.2
160	Botswana	23.9
161	Afghanistan	23.6
161	Congo (Brazzaville)	23.6
163	Kiribati	23.4
164	Djibouti	23.2
165	Bangladesh	23.1
166	Guinea	23.0
166	Syria	23.0
168	Malta	22.4
169	Niue	21.8
170	Angola	21.7
170	Antigua and Barbuda	21.7
170	Bulgaria	21.7
173	Haiti	21.1
174	Dominica	20.9
175	San Marino	20.8
176	Malawi	20.7
176	Seychelles	20.7
178	Gabon	20.6
179	Niger	20.1
180	Venezuela	19.7
181	Algeria	19.6
181	Tuvalu	19.6
183	Iraq	19.5
184	Yemen	19.0
185	Libya	18.9
186	São Tomé and Príncipe	18.7
186	Solomon Islands	18.7
188	Mozambique	18.2
189	Marshall Islands	18.1
190	Guinea-Bissau	17.8
191	Equatorial Guinea	17.6
192	Cook Islands	17.5
193	Somalia	17.4
194	Eritrea	16.0
195	North Korea	11.3

4. SUFFICIENT & ROBUST HEALTH SYSTEM TO TREAT THE SICK & PROTECT HEALTH WORKERS

Rank	Score	
157	Angola	10.9
158	Haiti	10.6
159	Grenada	10.3
160	Namibia	10.1
161	Jamaica	10.0
161	Togo	10.0
163	Belize	9.7
163	Eritrea	9.7
163	Timor-Leste	9.7
166	Comoros	9.4
167	Djibouti	9.3
168	Andorra	9.2
168	Samoa	9.2
170	Libya	9.1
170	Niue	9.1
172	Burundi	8.9
173	Barbados	8.5
173	Dominica	8.5
175	Tanzania	8.2
176	Guinea	8.0
177	Bahamas	7.9
178	Yemen	7.6
179	Fiji	7.5
179	Tonga	7.5
181	Antigua and Barbuda	7.4
182	Kiribati	7.3
183	Marshall Islands	7.2
183	São Tomé and Príncipe	7.2
185	St. Kitts and Nevis	7.1
186	Chad	6.6
186	Vanuatu	6.6
188	Eswatini (Swaziland)	6.5
189	Congo (Brazzaville)	6.3
189	St. Lucia	6.3
191	Benin	5.6
191	Burkina Faso	5.6
193	Equatorial Guinea	5.0
194	Guinea-Bissau	4.6
195	Somalia	0.3

5. COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING AND ADHERENCE TO NORMS

Rank	Score	
157	Djibouti	36.3
157	Mauritania	36.3
157	Micronesia	36.3
160	Azerbaijan	36.2
161	Monaco	35.3
161	Panama	35.3
161	Paraguay	35.3
164	Cabo Verde	33.9
164	Timor-Leste	33.9
164	Tonga	33.9
167	Equatorial Guinea	33.5
167	Nepal	33.5
167	São Tomé and Príncipe	33.5
170	Morocco	32.7
170	Qatar	32.7
172	South Sudan	32.6
173	Andorra	32.4
174	Kiribati	32.3
175	Nauru	32.0
175	Palau	32.0
177	Libya	31.0
177	Tunisia	31.0
179	Marshall Islands	30.7
179	Samoa	30.7
181	Cook Islands	29.9
181	Niue	29.9
183	Iraq	29.5
184	Algeria	29.1
184	Mauritius	29.1
186	Iran	28.7
187	Tuvalu	28.6
188	Somalia	28.5
189	Bahrain	27.8
190	Fiji	27.4
191	North Korea	27.3
192	Syria	26.1
193	Belarus	25.8
194	San Marino	25.0
195	Brunei	23.3

6. OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

Rank	Score	
156	Mauritania	39.5
158	Zimbabwe	39.2
159	Libya	39.0
160	Pakistan	38.7
160	Papua New Guinea	38.7
162	Cambodia	38.5
163	Mozambique	38.4
164	Myanmar	38.2
164	Tajikistan	38.2
164	Venezuela	38.2
167	Congo (Brazzaville)	38.1
168	Malawi	37.6
168	Togo	37.6
170	Liberia	37.4
171	Comoros	36.5
172	North Korea	35.6
173	Uganda	35.5
174	Nigeria	33.7
175	Cameroon	33.6
175	Ethiopia	33.6
177	Eritrea	33.2
178	Sudan	33.0
179	Sierra Leone	32.8
180	Madagascar	32.4
181	Mali	32.1
182	Guinea	31.3
183	Syria	29.6
184	Iraq	29.2
185	Haiti	28.9
186	Niger	28.5
187	Burundi	28.3
188	Guinea-Bissau	24.1
189	Chad	23.7
190	Yemen	23.5
191	Afghanistan	23.3
192	Central African Republic	23.0
193	South Sudan	22.1
194	Congo (Democratic Republic)	20.1
195	Somalia	15.9

GHS INDEX RESULTS

All data are normalized
to a scale of 0 to 100,
where 100 = best health
security conditions.

- █ Most prepared
- █ More prepared
- █ Least prepared



About the Global Health Security Index

Biological threats, whether naturally occurring, accidental, or deliberate, have the potential to kill millions, cost billions of dollars in economic losses, and create political and economic chaos and instability. Global travel, urbanization, advances in biotechnology, and terrorist and state interest in weapons of mass destruction magnify these risks, underscoring the urgent need to identify and fill gaps to measurably strengthen global health security capabilities.

The Global Health Security Index (GHS Index) is the first comprehensive benchmark of health security and related capabilities across 195 countries that make up the States Parties to the International Health Regulations (IHR 2005). The Nuclear Threat Initiative (NTI) and the Johns Hopkins Center for Health Security (JHU), working with The Economist Intelligence Unit (EIU), developed the GHS Index, which aims to set a high threshold for preparedness against epidemics that can lead to pandemics. NTI, JHU, and The EIU believe that, over time, the GHS Index will increase international capacity in health security to address one of the world's most omnipresent risks: infectious disease.

In gathering data for the GHS Index, the team, comprising nearly 110 researchers and reviewers, spent more than 15,000 hours over the course of one year exploring publicly available data via a rigorous and deliberate research methodology. Following data collection, the project team reviewed each score for accuracy, and the final data were calibrated to ensure consistency in scoring across countries.

The project team provided each country with an opportunity to validate its data. The team contacted officials at embassies in Washington, D.C., and missions at the United Nations (UN) in New York, providing them with the full set of scores for each of the 96 qualitative questions in the GHS Index. Government officials were asked specifically to consult with IHR focal points in reviewing the data. Sixteen countries provided feedback after reviewing their data.¹⁰

The GHS Index consists of the final data: (a) results and data sources for each question by country and (b) justifications for the score for each question. This report captures the data analysis performed by NTI, JHU, and The EIU against the full data set. The questions within the GHS Index prioritize epidemic and pandemic preparedness as a key component of international security and include elements regarding country context that could exacerbate epidemic or pandemic risks.

Knowing the risks and identifying the gaps, however, is not enough. Political will is needed to save lives and build a safer and more secure world. The GHS Index will help decision makers in individual countries, regional and international organizations, and philanthropies to more effectively identify and provide resources to fill capability gaps. Because measuring risk is difficult and states will not be held accountable without regular assessments, the GHS Index over time will measure progress against benchmarks, promote mutual accountability, encourage transparency, and spur incentives for improvements.

¹⁰ Of the 195 countries that were provided their scores for validation, 16 responded with additional data and references: Belgium, Canada, Finland, Italy, Kyrgyz Republic, Latvia, Liechtenstein, Lithuania, Peru, Philippines, Portugal, St. Kitts and Nevis, Sierra Leone, Slovenia, Spain, and Switzerland.

GHS INDEX THEORY OF CHANGE

The GHS Index seeks to spur decision makers to improve country preparedness for infectious disease outbreaks and high-consequence,¹¹ as well as globally catastrophic, biological events.¹²

Countries should understand where their own preparedness gaps lie and how prepared their neighbors are to gauge the likelihood that an outbreak could spread. At the same time, international organizations working to minimize the risk of epidemics and pandemics need to know where gaps in preparedness exist so they can target resources to help countries make improvements.

To identify these gaps, the GHS Index relied on open-source information—data that a country has published on its own or has reported to or been reported by an international entity which then made such data public. The GHS Index was predicated on data transparency out of a firm belief that all countries are safer and more secure if they understand each other's gaps in epidemic and pandemic preparedness so they can take concrete steps to finance and fill them. It is incumbent upon the health, financial, and security communities to leverage the capabilities of national, regional, and global public- and private-sector stakeholders to collectively—and openly—minimize gaps in data availability to build greater transparency.

The GHS Index also places a premium on the existence of functional systems to prevent, detect, and respond to infectious disease threats. Many questions in the GHS Index are designed to determine not only whether a capacity exists, but also whether that capacity is regularly tested and shown to be effective in planned exercises or real-world events. In addition, the GHS Index prioritizes national regulations and adherence to international norms, as well as the management of high-consequence biological threats, including accidental and deliberate releases of agents.

Finally, the Index prioritizes financing and serves as a tool for national governments, development banks, and philanthropic donors to more systematically prioritize resources to fill gaps most vital to preventing, detecting, and rapidly responding to biological events before they can spread or lead to cascading and destabilizing effects.

Gathering and displaying data on preparedness from countries around the world will lead to a sharper understanding of strengths and weaknesses, identification of funding needs, and increased political will for making necessary change.

¹¹ "High-consequence biological events" are defined here as infectious disease outbreaks that could overwhelm national or international capacity to manage them. For example, although international health security has improved following the 2014–2016 Ebola epidemic in West Africa, countries and international responders are not prepared to quell outbreaks that occur in violent or insecure settings; deliberate biological events that require close coordination and investigative links among security, health, and humanitarian actors; and fast-moving respiratory diseases with high mortality that could spread rapidly to become global pandemics.

¹² Global Catastrophic Biological Risks are biological risks of unprecedented scale that could cause severe damage to human civilization at a global level, potentially undermining its long-term potential. See Nick Alexopoulos, "Center for Health Security Publishes First Working Definition of Global Catastrophic Biological Risks," Johns Hopkins Center for Health Security, July 27, 2017, www.centerforhealthsecurity.org/about-the-center/newsroom/news_releases/2017-07-27_global-catastrophic-biological-risk-definition.html.

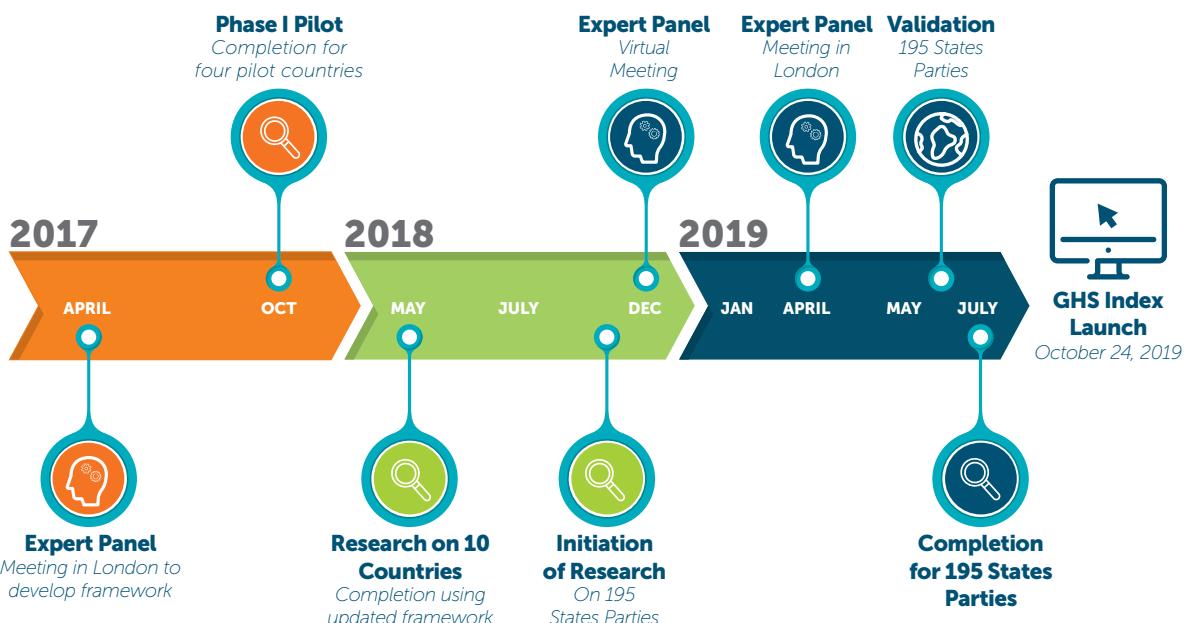
DEVELOPING THE GHS INDEX

The GHS Index has undergone a series of tests to ensure the rigor and credibility of the framework, availability of data, and reproducibility for the future. Most of the research for the GHS Index was conducted between August 2018 and May 2019, although data were updated as new information became available until July 22, 2019. Key steps over the two-and-a-half-year process to develop the Index included the following:

- A 20-person panel of experts from 13 countries was convened to shape underlying principles and help develop the GHS Index framework.
- A pilot project was undertaken by The EIU to test the availability of reliable data and provide feedback for the initial framework design.
- The pilot project was expanded to additional countries to assess the updated framework.
- Wherever possible, the framework employed binary, or dichotomous, indicators to minimize subjectivity in scoring among the researchers.
- The pilot project confirmed the availability of data in the GHS Index framework, and 110 EIU researchers and reviewers throughout the world initiated the year-long data collection and validation process.
- The expert panel was consulted at key points throughout the process.
- Following data collection, the project team conducted a quality control process, and the final data were calibrated to ensure consistency in scoring across countries.
- All countries were provided the opportunity to validate their data, through their embassies in Washington, D.C., or UN missions in New York. The project team provided each country with the scores for each of the 96 qualitative questions in the GHS Index. Sixteen countries provided feedback after reviewing their data.¹³

This careful research process allowed the project team to highlight and bring together for the first time in one place extensive publicly available data to assess global health security. The breadth of this research, the objective and transparent approach brought to the process, and the comprehensive view it offers sets the GHS Index apart from other health security assessments.

STEPS IN THE DEVELOPMENT OF THE GHS INDEX



¹³ Of the 195 countries that were provided their scores for validation, 16 responded with additional data and reference: Belgium, Canada, Finland, Italy, Kyrgyz Republic, Latvia, Liechtenstein, Lithuania, Peru, Philippines, Portugal, Saint Kitts and Nevis, Sierra Leone, Slovenia, Spain, and Switzerland.

UNDERLYING PRINCIPLES OF THE GHS INDEX

The following key underlying principles serve as the foundation for the GHS Index framework:

- **Capacities must be exercised to be effective in a crisis.** When it comes to global health security, possession of an untested capacity is not enough. To be truly prepared, a country should prove that it can marshal and effectively use capacities to prevent, detect, and respond to a high-consequence biological threat. Since the West Africa Ebola outbreak in 2014, countries have made progress in assessing health security gaps and have begun to build new capacities. However, the GHS Index results clearly show that few countries have exercised or tested these capacities in real-world events, which suggests there is a global lack of capabilities to stop outbreaks at the source.
- **Without a stable, peaceful society and access to healthcare, countries face an even greater challenge in stopping outbreaks at the source.** Global health security depends on the presence of a stable political, social, and economic environment; strong healthcare system; and robust health workforce. These underlying conditions have a major influence on a country's ability to prevent outbreaks from becoming epidemics. Health leaders face a world that is profoundly unprepared to effectively govern and coordinate a successful response to an epidemic, pandemic, or other risk.
- **Countries should get ahead of tomorrow's emerging biological risks even while addressing the risks of today.** There are serious risks associated with the coming advances in technology and the potential for accidents that could follow or its deliberate misuse. Preventing deliberate and accidental biological events has, unfortunately, remained a second-tier issue for both the global health and the international security sectors.

• **Global Catastrophic Biological Risks (GCBRs) should be urgently reduced.** GCBRs are biological risks of unprecedented scale that could cause damage to human civilization at a global scale, potentially undermining civilization's long-term potential. Left unchecked, pandemics can become GCBRs, leading to great suffering; loss of life; and sustained damage to national governments, international relationships, economies, societal stability, and global security. Global trends in technology, travel, trade, and terrorism are increasing the risk of a globally catastrophic biological event, but decision makers are not yet planning for the types of biological events—such as those that could be caused by novel or engineered biological agents—with the potential for lasting, population-wide damage. Similarly, GCBRs are not well-accounted for within current country-level assessments, including the World Health Organization (WHO) Joint External Evaluations (JEEs). See GCBRs sidebar on pages 42–43.

• **Transparency and trust are vital elements of pandemic preparedness.** Global health security is a shared responsibility—among countries, across sectors, and as a collective international security imperative. To achieve health security, countries should first and foremost understand their strengths and weaknesses—and those of their neighbors. Countries also must prioritize compliance with and adherence to international commitments and norms. Transparently shared, publicly available data are necessary to paint a comprehensive and reproducible picture of the global gaps in preparedness.



International Panel of Experts meeting, London, 2019. Center: Dr. Pretty Multihartina

THE FRAMEWORK

With these underlying principles in mind, the project team and panel of experts developed the framework, which includes 140 questions, organized across six categories, 34 indicators, and 85 subindicators. They were selected on the basis of project team analysis; a literature review; and input from the International Panel of Experts and additional expert advisors, practitioners, and scholars.

The framework consists of a series of qualitative and quantitative questions, the answers to which can be scored consistently and compared and assessed across countries. This reproducible methodology will allow the GHS Index to serve as a benchmark and measure improvements over time. Countries were assessed across the 140 questions, with scores aggregated at the subindicator, indicator,

category, and overall levels. The scale of the scoring is 0 to 100, where 100 = best. Aggregate scores are divided into three tiers, with countries scoring between 0 and 33.3 in the bottom tier (also called "low scores"), countries scoring between 33.4 and 66.6 in the middle tier (also called "moderate scores"), and countries scoring between 66.7 and 100 in the upper or "top" tier (also called "high scores").

The categories and indicators included in the GHS Index assess country capability to prevent, detect, and respond to biological threats as well as factors that can hinder or enhance that capability. These factors include countries' overarching national healthcare sectors, international commitments to norms and financing gaps, and political and economic risk factors. The following categories create the framework for the GHS Index and form a robust structure for research into gaps in health security.



PERENT



DETECT



RESPOND



HEALT



NORMS



RISK

1. PREVENTION: *Prevention of the emergence or release of pathogens*, including those constituting an extraordinary public health risk in keeping with the internationally recognized definition of a Public Health Emergency of International Concern.¹⁴ Indicators in this category assess antimicrobial resistance, zoonotic disease, biosecurity, biosafety, dual-use research and culture of responsible science, and immunization.

2. DETECTION AND REPORTING: *Early detection and reporting for epidemics of potential international concern*,¹⁵ which can spread beyond national or regional borders. Indicators in this category assess laboratory systems; real-time surveillance and reporting; epidemiology workforce; and data integration between the human, animal, and environmental health sectors.

3. RAPID RESPONSE: *Rapid response to and mitigation of the spread of an epidemic*. Indicators in this category assess emergency preparedness and response planning, exercising response plans, emergency response operation, linking public health and security authorities, risk communication, access to communications infrastructure, and trade and travel restrictions.

4. HEALTH SYSTEM: *Sufficient and robust health system to treat the sick and protect health workers*. Indicators in this category assess health capacity in clinics, hospitals, and community care centers; medical countermeasures and personnel deployment; healthcare access; communications with healthcare workers during a public health emergency; infection control practices and availability of equipment; and capacity to test and approve new countermeasures.

5. COMPLIANCE WITH INTERNATIONAL NORMS: *Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms*. Indicators in this category assess IHR reporting compliance and disaster risk reduction; cross-border agreements on public health emergency response; international commitments; completion and publication of WHO JEE and the World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) Pathway assessments; financing; and commitment to sharing of genetic and biological data and specimens.

6. RISK ENVIRONMENT: *Overall risk environment and country vulnerability to biological threats*. Indicators in this category assess political and security risk; socioeconomic resilience; infrastructure adequacy; environmental risks; and public health vulnerabilities that may affect the ability of a country to prevent, detect, or respond to an epidemic or pandemic and increase the likelihood that disease outbreaks will spill across national borders.

Complete information including indicators, subindicators, scores for each question, justifications for those scores, and the publicly available sources for those justifications are available in the GHS methodology on page 61 and on the website at www.ghsindex.org.

¹⁴ World Health Organization, "IHR Procedures Concerning Public Health Emergencies of International Concern (PHEIC)," www.who.int/ihr/procedures/pheic/en/.

¹⁵ Ibid.

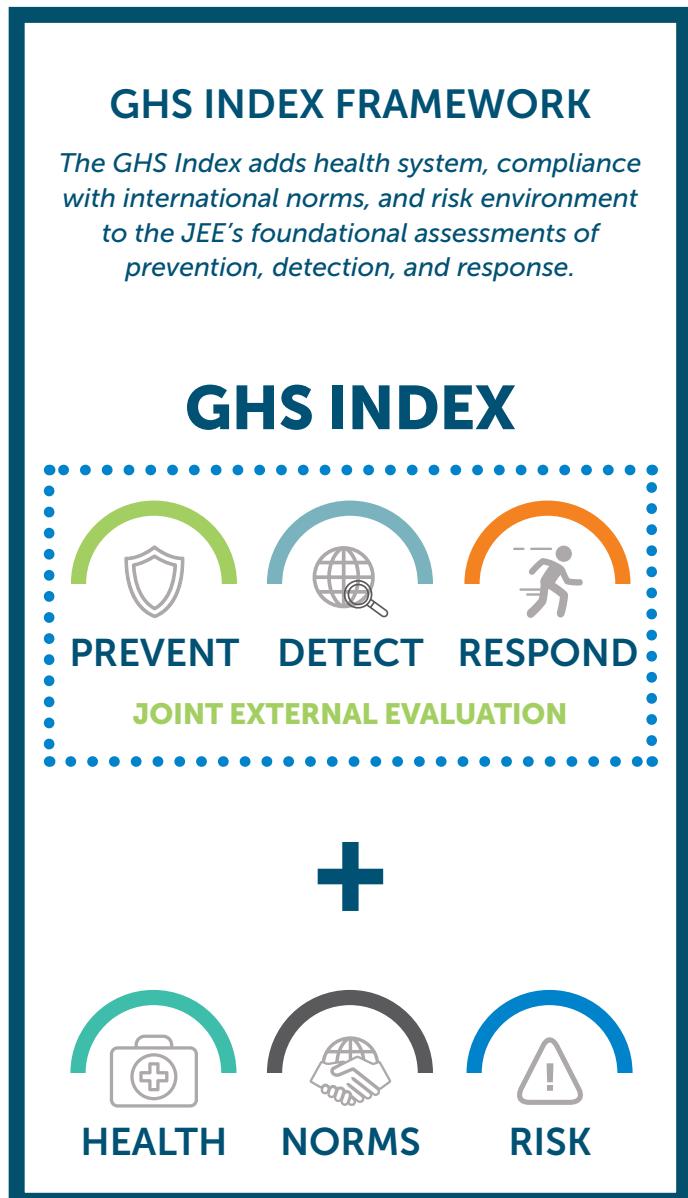
OUR APPROACH

Other valuable measures exist for assessing global health security, including the voluntary WHO JEE, the IHR State Party Self-Assessment Annual Reporting Tool, and the OIE PVS Pathway. Other tools that rely on consolidated international data sources are also available. The GHS Index complements and builds upon these existing tools by adding and integrating detailed information that allows for deeper assessments of country-level biosecurity and healthcare system capacities. In the GHS Index, this approach highlights the level at which a country is performing against specific indicators and sets a higher threshold to encourage progress toward alignment with international norms. The GHS framework also prioritizes analysis of health security capacity in the context of a country's broader national health system and other national risk factors, such as political, socioeconomic, and environmental risk factors, which may affect the emergence and spread of epidemics or pandemics.

The GHS Index framework is the first comprehensive assessment tool that evaluates national health security capacities and capabilities for 195 countries (see GHS Index Framework). The GHS Index considers countries' capacities to prevent, detect, and respond to public health emergencies, which are the focus of other national evaluation efforts. It also assesses the robustness of the broader healthcare system in each assessed country. In addition, the Index considers national political and socioeconomic risks, as well as adherence to international norms, which can influence countries' abilities to stop outbreaks.

The GHS Index compiles data on each of the 195 countries that are States Parties to the IHR (2005). The Index framework includes information available through the voluntary JEE process, as well additional questions and three more categories. By collecting data on nearly every country, the GHS Index markedly increases transparency about health security strengths and gaps around the world.

A regularly released GHS Index will provide additional impetus and political will for resources to fill identified gaps and, therefore, bolster the JEE process. To date, only approximately half of the IHR States Parties have conducted a JEE. By including, as a scoring element, countries' commitments to undergo and publish a JEE, the GHS Index seeks to provide increased global support for this important external evaluation process.



FEATURES OF THE GHS INDEX

The GHS Index framework includes indicators that help show preparedness for high-consequence biological events and their cascading effects, including global catastrophic risks. Throughout the categories on prevention, detection, and response, specific questions in the Index are designed to gather details regarding whether a country regularly exercises or has recently used specific capacities. Additional GHS Index features follow:

- **The GHS Index rewards country transparency.** The Index stands on the belief that no country is prepared unless those who would be called to respond in an infectious disease event have knowledge of that country's existing health security capacities, plans, and capabilities. Countries that publicly describe or display information on their capacities and capabilities receive higher scores than those that are not transparent. The GHS Index methodology relies entirely on publicly available sources for data collection.¹⁶ This research approach has two key benefits: (a) it reduces the reporting burden for countries by placing the full responsibility for data collection on the researchers, and (b) it creates a transparent and repeatable methodology, which can be vetted and understood by the global community.

- **The GHS Index shows its sources and provides justifications for all to examine and use.** The GHS Index publishes justifications and sources for each question it scores, adding to the literature and the understanding of national health security for each of the 195 assessed countries.

- **The GHS Index allows for regular tracking over time.** The 2019 edition of the GHS Index offers a baseline assessment of health security capacities and capabilities around the globe. This approach will allow countries to track their own progress in the future and provides a means of holding countries accountable for improvements.

¹⁶ See the GHS Index methodology on page 61.

Key Findings and Recommendations

Overall Finding

National health security is fundamentally weak around the world. No country is fully prepared for epidemics or pandemics, and every country has important gaps to address.

The GHS Index finds that no country is fully prepared for epidemics or pandemics and all countries have gaps to address. Collectively, international preparedness is quite weak. The average overall GHS Index score among all 195 countries assessed is 40.2 of a possible score of 100. Among the 60 high-income countries, the average GHS Index score is 51.9. Additionally, 116 high- and middle-income countries do not score above 50.

Broken down by category, fewer than 7% of countries scored in the highest tier¹⁷ for the ability to prevent the emergence or release of pathogens. Only 19% of countries scored in the highest tier for the ability to quickly detect and report epidemics of potential international concern, and fewer than 5% of countries scored in the top tier for their ability to rapidly respond to and mitigate the spread of an epidemic.

The GHS Index also analyzes a series of important factors that may be associated with country capability to curb outbreaks, such as the quality of a country's broader health system, political and socioeconomic risk factors, and adherence to international norms and commitments.

Most countries (67%) score in the bottom tier for health system indicators, including indicators related to healthcare workforce, access to healthcare, availability of equipment for healthcare workers, and capability to treat the sick. The average GHS Index score for the health systems category is 26.4. Similarly, only 23% of countries score in the top tier for indicators related to their political system and government effectiveness, which can have a major impact on national capability to address biological threats. Many countries are also lacking in their ability to adhere to important international norms and commitments related to biological threats—less than half of countries in the GHS Index have submitted Confidence-Building Measures under the Biological Weapons Convention (BWC) in the past three years.

¹⁷ See page 35 for a description of the GHS Index scoring system.

Although every country has a responsibility to understand, track, improve, and sustain national health security, new and increased global biological risks may require approaches that are beyond the control of individual governments and will necessitate international action. Health security is not solely the responsibility of national governments; international organizations, non-governmental global health and international security leaders, philanthropies, and private-sector partners share the responsibility to understand and act to fill these major health security gaps. Most WHO regions¹⁸ include at least some countries with overall scores below 25 of 100, and some WHO regions show major fluctuations in scores within that specific region. The Index finds, on the basis of public information, that only 11% of countries have in place specific ways to engage the private sector to assist with outbreak emergency preparedness and response.

It is also important to emphasize that national preparedness efforts are not strictly determined by a country's GDP per head, a widely used measure of national wealth. A number of middle- and low-income countries show GHS Index scores that are higher than those for some high-income countries. Thailand is an example—the only non-high-income country in the top tier for overall score.

Whereas many of the recommendations contained in this report are intended for national leaders, some recommendations are aimed at decision makers within the UN system, international organizations, donor governments, philanthropies, and the private sector. These recommendations are made with the understanding that health security is a collective responsibility and a robust international health security architecture is required to support countries at increased risk. These aspects of health security are especially important in the case of fast spreading, deliberately caused, or otherwise unusual outbreaks that could rapidly overwhelm the capability of national governments and international responders.

Recommendations

- National governments should commit to take action to address health security risks. Leaders should closely coordinate and track in-country health security investments with an emphasis on coordinating them with improvements to routine public health and healthcare systems.
- Health security capacity in every country should be transparent and regularly measured. The results of those external evaluations and self-assessments should be published at least once every two years.
- National and international health, security, and humanitarian leaders should improve coordination among sectors, including operational links between security and public health authorities, in response to high-consequence biological events, deliberate attacks, and events occurring in insecure environments. They also should work to reduce political and socioeconomic risk factors that can impede outbreak response, including in conflict zones.
- New financing mechanisms to fill epidemic and pandemic preparedness gaps are urgently needed and should be established. These could include a new multilateral global health security financing mechanism, such as a global health security matching fund; expansion of the availability of the World Bank International Development Association (IDA) allocations to allow for preparedness financing; and/or development of other new ways—including through existing donor and multilateral financing programs for global health and disaster preparedness and response—to expand resources to incentivize countries to prioritize preparedness funding.

¹⁸ WHO Member States are grouped into six WHO regions: African Region (AFRO), Region of the Americas (AMRO), South-East Asia Region (SEARO), European Region (EURO), Eastern Mediterranean Region (EMRO), and Western Pacific Region (WPRO). WHO, "Definition of Regional Groupings," 2019, www.who.int/healthinfo/global_burden_disease/definition_regions/en/.

- The Office of the UN Secretary-General, working in concert with the WHO, the UN Office for the Coordination of Humanitarian Affairs, and the UN Office for Disarmament Affairs, should designate a permanent facilitator or unit for high-consequence biological events that could overwhelm the capacities of the current international epidemic response architecture, resulting in mass casualties. This function would not be operational in nature, but rather the facilitator or unit would convene the public health, security, and humanitarian sectors before and during crises to identify and fill gaps in global preparedness specific to rapidly spreading events with the potential for great loss of life.¹⁹ The person or unit with this responsibility would also spur simulation exercises in concert with the UN Operations and Crisis Centre to promote unity of effort across public health, humanitarian, and security-led responses.
- Countries should test their health security capacities and publish after-action reviews, at least annually. By holding annual simulation exercises, countries will show commitment to a functioning system. By publishing after-action reviews, countries can transparently demonstrate that their response capabilities will function in a crisis and can identify areas for improvement.
- National governments and donors should take into account countries' risk factors for significant disease outbreaks when making resources available to support health security capacity development. Countries with low scores related to risk environment should be identified as priority areas for capacity development and should receive prompt international assistance when infectious disease emergencies occur within their borders.
- Given the enormous national need, the UN Secretary-General should call a heads-of-state-level summit on biological threats by 2021 that is focused on creating sustainable health security financing and new international emergency response capabilities.

¹⁹ In February 2019, NTI, the Georgetown University Center for Global Health Science and Security, and the Center for Global Development convened a senior leaders' tabletop exercise in advance of the Munich Security Conference to determine gaps in the international system for responding to deliberate biological events. For the report containing findings and recommendations from this event, see Elizabeth Cameron et al., "Lessons and Recommendations for Responding to a Deliberate Biological Event," Nuclear Threat Initiative paper, June 2019, www.nti.org/analysis/reports/spreading-plague-lessons-and-recommendations-responding-deliberate-biological-event/.

Global Catastrophic Biological Risks: Index Finds Weak Global Capacity

Global Catastrophic Biological Risks (GCBRs), a term of art for those who study and work to prevent worst-case scenarios, are biological risks of unprecedented scale that could cause such significant damage to human civilization that they undermine its long-term potential. Left unchecked, high-consequence biological events can become GCBRs, leading to enormous suffering; loss of life; and sustained damage to national governments, international relationships, economies, societal stability, and global security.^a

Global trends in technology, travel, trade, and terrorism are increasing the risk of a globally catastrophic biological event, but decision makers are not yet planning for the types of events—such as those that could be caused by novel or engineered biological agents—with the potential for lasting, population-wide damage.

The Global Health Security (GHS) Index includes a focus on GCBRs, including 21 subindicators that are particularly relevant to national capacity to prevent, detect, and respond to GCBRs.

The GHS Index finds that national capacity in the areas most relevant to preventing, detecting, and responding to global catastrophic risks is generally weak. At least 75% of countries receive a low score in biosecurity, oversight for dual-use research, emergency response operations, linking of public health and security authorities, and medical countermeasure dispensing.

The subindicators in the GHS Index that are particularly relevant for preventing and responding to GCBRs are outlined in Table A1, along with a summary of country scores in each of these areas.

An analysis of the GCBR-relevant indicators reveals the following trends:

- National-level capacity in the areas most relevant to reducing GCBRs is generally weak. For most of these GCBR-relevant subindicators, fewer than one-third of countries receive a high score.
- The weakest GCBR-relevant areas, where at least 75% of countries receive a low score, are biosecurity, capacity to conduct effective oversight over dual-use research, emergency response operations, linking public health and security authorities, and medical countermeasure dispensing. The weakest GCBR-relevant area is oversight of dual-use research, for which 95% of countries receive a zero score.
- Additional weak areas, where at least 50% of countries receive a low score, are biosafety, the existence of an interoperable electronic real-time reporting system, national emergency preparedness and response planning, risk communication, and the ability to acquire medical countermeasures.
- The GCBR-relevant areas where national capacity is relatively strong are participation in international agreements and emergency response financing. More than 60% of countries receive a moderate or high score for these two subindicators.
- At the same time, submission of Confidence-Building Measures (CBMs), required by the Biological Weapons Convention (BWC) is a weak point. Most countries (54%) have not submitted a CBM in the past three years. This is important for reduction of GCBRs because transparency is a potentially effective means of reducing suspicion and miscalculation in relation to compliance with the BWC.

Although the indicators highlighted in this section are important for preventing and mitigating GCBR-level events, they are not sufficient. This is due in part to the fact that the global health security community is still developing proposed actions and capabilities that will be needed to meaningfully reduce such profound risks, as well as effective ways to measure those actions and capabilities. A whole range of foundational capacities are also necessary for preventing, detecting, and responding to even small epidemics, and these would also be crucial for GCBR-scale events.

INDICATORS	BRIEF DESCRIPTION	COUNTRIES WITH A LOW SCORE	COUNTRIES WITH A MEDIUM SCORE	COUNTRIES WITH A HIGH SCORE
1.3.1–1.3.5	Biosecurity	81%	15%	4%
1.4.1–1.4.2	Biosafety	66%	24%	10%
1.5.1–1.5.2	Dual-use research and culture of responsible science	99%	1%	–
2.2.2	Interoperable, interconnected, electronic real-time reporting systems	68%	–	32%
3.1.1	National public health emergency preparedness and response plan	70%	19%	11%
3.3.1	Emergency response operation	95%	–	5%
3.4.1	Linking public health and security authorities	77%	–	23%
3.5.1–3.5.2	Risk communication	62%	6%	33%
4.2.1	Capacity to acquire medical countermeasures	50%	–	50%
4.2.2	System for dispensing medical countermeasures during a public health emergency	89%	–	11%
4.6.1–4.6.2	Capacity to test and approve new medical countermeasures	41%	35%	24%
5.3.1	Participation in international agreements	11%	42%	47%
5.5.2	Financing for emergency response	39%	–	61%

Note: Where percentages are not shown, the questions asked for each of these subindicators showed only a binary answer and therefore no medium scores were calculated, or no value high score was achieved.

^a Nick Alexopoulos, "Center for Health Security Publishes First Working Definition of Global Catastrophic Biological Risks," Johns Hopkins Center for Health Security, July 27, 2017, www.centerforhealthsecurity.org/about-the-center/newsroom/news_releases/2017-07-27_global-catastrophic-biological-risk-definition.html.

FINDING

Countries are not prepared for a globally catastrophic biological event, including those that could be caused by the international spread of a new or emerging pathogen or by the deliberate or accidental release of a dangerous or engineered agent or organism. Biosecurity and biosafety are under-prioritized areas of health security, and the connections between health and security-sector actors for outbreak response are weak.

Global preparedness for catastrophic biological threats is poor, and biosecurity and biosafety remain significantly under-prioritized areas of health security. Decision makers are not yet planning for the types of high-consequence biological events that have the potential for lasting, population-wide damage, including those that could be caused by the emergence and global spread of a novel or engineered biological agent.

The GHS Index finds that national capacity in the measured areas most relevant to preventing and responding to global catastrophic risks is generally weak. At least 75% of countries receive a low score for biosecurity, effective oversight for dual-use research, emergency response operations, linking public health and security authorities, and medical counter-measure dispensing. Additionally, most countries do not demonstrate the practice of linking public health and security authorities or show the existence of an interoperable electronic real-time reporting system.

In other assessments, including the WHO JEE, biosecurity and biosafety indicators are often reviewed together, resulting in potential confusion over specific needs in each area. The GHS Index emphasizes the need for explicit biosecurity and biosafety practices that meaningfully reduce the risks of accidental release and deliberate misuse.

Why it matters

High-consequence biological events have the potential to overwhelm national and international public health and humanitarian assistance systems, and they can cause national and regional instability, global economic damage, and widespread morbidity and mortality, thereby requiring additional attention and resources from regional and global leaders for successful containment. A Global Catastrophic Biological Risk (GCBR) is a type of high-consequence biological event characterized by an unprecedented scale that could cause severe damage to human civilization, potentially undermining civilization's long-term potential. GCBRs have been defined as follows:

Those events in which biological agents—whether naturally emerging or reemerging, deliberately created and released, or laboratory engineered and escaped—could lead to sudden, extraordinary, widespread disaster beyond the collective capability of national and international governments and the private sector to control. If unchecked, GCBRs would lead to great suffering, loss of life, and sustained damage to national governments, international relationships, economies, societal stability, or global security.²⁰

The GHS Index prioritizes national capacity to reduce the risk of biological events that have the potential to cause catastrophic damage on a global scale and lasting, population-wide harm. For example, the GHS Index

²⁰ Monica Schoch-Spana et al., "Global Catastrophic Biological Risks: Toward a Working Definition," *Health Security* 15, no. 4 (2017): 323–28, <https://www.liebertpub.com/doi/full/10.1089/hs.2017.0038>.

includes indicators related to prevention, detection, and response to biological events caused by the deliberate or accidental release of disease agents with enhanced virulence or transmissibility, diseases for which no current countermeasures exist, and those that can evade detection or treatment.

It is important that all countries, even those with limited capacity, prepare for high-consequence biological events because—if such an event were to occur—there would likely be limited international resources available to assist individual countries. Infectious disease events that affect a large part of the world are likely to disproportionately affect the countries that are least prepared. Donor countries and international responders facing a biological crisis at home may repurpose assets that are usually slated for assisting others.

The GHS Index also prioritizes capabilities that can reduce the potential risk of accidental or deliberate release of engineered agents. Although advances in genomics, synthetic biology, and microbiology are essential to achieving a safer, healthier, and more secure society, it is now possible for a broader array of actors to engineer biological agents and synthesize them from scratch in the laboratory. These scientific advances are outpacing the ability of national governments to provide effective oversight, which has left the technical community in many countries to govern itself, creating an inconsistent system of biosafety and biosecurity practices across institutions, countries, and regions. Although many assessed countries have likely not undertaken dual-use research with especially dangerous pathogens or pathogens that have pandemic potential, it is nonetheless important for countries to have systems in place to identify and mitigate the risks associated with such work should this work be proposed. Additionally, although many countries do not currently house companies that produce made-to-order deoxyribonucleic acid (DNA), the future potential for distributed, benchtop DNA synthesis makes it important for governments to attend to this risk.

The data

- 81% of countries score in the bottom tier for indicators related to deliberate risks (biosecurity), and 66% score in the bottom tier for indicators related to accidental risks (biosafety).
- National capacity in the measured areas most relevant to GCBR reduction is generally weak. At least 75% of countries receive a low score in biosecurity, capacity to conduct effective oversight over dual-use research, emergency response operations, linking public health and security authorities, and medical countermeasure dispensing.
- Fewer than 5% of countries provide oversight for dual-use research, including research with especially dangerous pathogens, toxins, and pathogens with pandemic potential.
- No countries have legislation or regulations in place that require companies to screen DNA synthesis orders to prevent the building blocks of dangerous pathogens from falling into the hands of malicious actors.
- 92% of countries do not show evidence of requiring security checks for personnel with access to dangerous biological materials or toxins, increasing the potential for insider threats.
- Only 16 countries show evidence of having in place an updated (in the past five years) record and inventory management system of facilities storing or processing dangerous pathogens and toxins.
- Only 2.5% of countries demonstrated that they have taken action to minimize the number of facilities housing especially dangerous pathogens.

- Fewer than 5% of countries score in the top tier for functional emergency response operations capability.
- 77% of countries received a low score for linking public health and security authorities.
- 72% of countries do not have available national regulations on the safe and secure transport of Category A and B²¹ infectious substances.
- Only 11% of countries have a plan in place for dispensing medical countermeasures during a public health emergency.
- Only 32% of countries received a high score for indicators related to the existence of an interoperable electronic real-time reporting system.

Recommendations

- Governments and international organizations should develop the capabilities required to prevent, detect, and respond to fast-moving pandemic threats, including risks stemming from engineered or newly emerging biological agents that are highly transmissible, virulent, and/or resistant to medical countermeasures.
- National governments should include specific, measurable biosecurity and biosafety benchmarks in all national health security strategies and track progress on an annual basis.
- A dedicated international normative body should be developed—either within an existing international organization or as a new entity—to promote the early identification and reduction of biological risks associated with advances in technology and to establish and share best-practice guidance related to dual-use research in the life sciences.

- Governments, philanthropies, and technology funders should invest a percentage of their sustainable development and global health security portfolios in research, development, and capacity building aimed at preventing epidemics and pandemics from causing catastrophic damage on a global scale. This approach should include investing in areas where the GHS Index shows weakness in countries' ability to prevent, detect, or respond to global catastrophic risks: biosecurity, effective oversight of dual-use research, emergency response operations, operational links between public health and security authorities, and medical countermeasure dispensing.
- Research funders, philanthropies, academic institutions, and technology investors should provide incentives to identify and reduce biological risks associated with advances in technology and should invest in technical innovations that can improve biosecurity.
- National leaders; UN officials; and international health, security, and law enforcement organizations should prioritize the development of operational links between security and public health authorities for biological crises. Countries should establish specific guidance and memoranda of understanding for linking security organizations, including law enforcement officials, to public health and veterinary agencies in the event of a suspected deliberate biological event.
- Countries and international organizations should prioritize the development of national biosurveillance capabilities and a global biosurveillance architecture that is capable of rapidly detecting emerging unknown, unusual, and/or engineered agents.

For a more thorough discussion of Global Catastrophic Biological Risks and how they are measured in the GHS Index, see page 42.

²¹ For Category A and B Infectious Substances, as defined by the World Health Organization and the International Air Transport Association, see World Health Organization, "Guidance on Regulations for the Transport of Infectious Substances 2015–2016," 2015, apps.who.int/iris/bitstream/handle/10665/149288/WHO_HSE_GCR_2015.2_eng.pdf;jsessionid=6E0D65FCB8941AEAA8B30B80FEBCA32D?sequence=1; International Air Transport Association, Dangerous Goods Regulations, Section 3.6.2, Division 6.2, Infectious Substances, 58th ed., January 2017, www.iata.org/whatwedo/cargo/dgr/Documents/infectious-substance-classification-DGR56-en.pdf.

FINDING

There is little evidence that most countries have tested important health security capacities or shown that they would be functional in a crisis.

The GHS Index demonstrates a lack of publicly available information about the operational readiness of existing health security systems. The majority of countries show no indication that key health security capacities have been—or are required to be—tested or that they are ready to become operational in a crisis. Tabletop simulations, functional exercises, and after-action reviews are vital components of epidemic and pandemic preparedness, but most countries do not have a requirement to test national public health emergency operations capability on an annual basis, calling into question whether such systems would be ready for immediate use in a crisis. In addition, health security systems must operate on a national scale and be ready for deployment wherever an outbreak strikes.

Most health security assessments, such as the WHO JEE, measure the existence of capacities on paper or rely on expert understanding of the current state of system readiness and may therefore overestimate a country's level of readiness. The WHO IHR Monitoring and Evaluation Framework recommends simulation exercises to regularly test health security capabilities, although a separate analysis recently conducted by the WHO concluded that awareness of the benefits of simulation exercises and after-action reviews for evaluating and strengthening IHR capacities needs to be increased.²² The GHS Index affirms this finding.

Why it matters

The GHS Index prioritizes the existence of real-world and turnkey capability to prevent, detect, and respond to outbreaks. This approach goes beyond plans. It means

a country regularly exercises its emergency operations plans and centers, has established a risk communication infrastructure, conducts ongoing or real-time analysis of disease data, and has access to a trained public health workforce for rapid response.

The data

- 85% of countries show no evidence of having completed a biological threat–focused IHR simulation exercise with the WHO in the past year.
- Whereas 66% of countries demonstrate the existence of an emergency operations center with public health functions, fewer than 5% of countries publicly demonstrate or show a requirement to test their emergency operations center at least once per year.
- Fewer than 1% of countries show evidence that their emergency operations center has conducted, within the past year, a coordinated emergency response or emergency response exercise activated within 120 minutes²³ of the identification of the public health emergency/scenario.
- 77% of all countries do not demonstrate a capability to collect ongoing or real-time laboratory data.
- Only 24% of countries scored positively for the existence of a nationwide specimen transport system.

²² World Health Organization, "Simulation Exercise and After-Action Review Analysis Shows Need to Increase Awareness of Benefits," 2019, extranet.who.int/sph/news/simulation-exercise-after-action-review-analysis-shows-need-increase-awareness-benefits.

²³ The period of 120 minutes is the WHO target outlined within "WHO Benchmarks for International Health Regulations (IHR) Capacities," February 2019, apps.who.int/iris/bitstream/handle/10665/311158/9789241515429-eng.pdf?sequence=1.

- Although 50% of countries demonstrate a level of access to medical countermeasures during a public health emergency, 89% of countries did not publicly demonstrate a system for dispensing them.
- Whereas 80% of countries have some access to an applied epidemiology training program, such as a Field Epidemiology Training Program, only 19% of countries could publicly demonstrate at least one trained field epidemiologist per 200,000 people—decreasing the likelihood of a rapid, turnkey public health response.

FINDING

Most countries have not allocated funding from national budgets to fill identified preparedness gaps.

Health security preparedness financing has been ad hoc and difficult to track. It is estimated to be low in many countries,²⁴ likely representing only a small fraction of the global budget for international health, defense, and peace-and-security spending.

Although the GHS Index finds that 86% of countries show evidence of investing local or donor resources to improve health security, almost no countries have tied national budgetary resources to health security gap assessments and action plans (WHO JEE or OIE PVS). Additionally, only 10% of countries show evidence of senior leaders' public commitment to provide financing for epidemic threats at home or abroad.

These findings underscore the need to improve tracking for health security preparedness financing, costing for national action plans for health security, and national budget allocations for specific planning benchmarks so that progress can be measured over time.

Recommendations

- Countries should test their health security capacities and publish after-action reviews, at least annually. By holding annual simulation exercises, countries will show commitment to a functioning system. By publishing after-action reviews, countries can transparently demonstrate that their response capabilities will function in a crisis and can identify areas for improvement.
- Health security financing, evaluations, and planning should prioritize functional capability and regular exercises.

Why it matters

There is a significant mismatch between health security financing and the consequences of a pandemic or severe epidemic that would threaten global stability and result in extreme economic loss.²⁵ Proper financing means prioritizing the allocation of funds to address specific gaps identified in JEEs and resulting National Action Plans for Health Security (NAPHS). The readiness and responsiveness of a health system is related to the ability of countries to measure improvements in capacity, which, in turn, is related to the availability of financial resources to fill gaps and maintain health security capabilities over time.

Unfortunately, there is a lack of overall senior leaders' commitment to providing health security financing, as well as a lack of a systematic and sustainable approach toward that financing. The GHS Index provides an objective platform to stimulate discussions about priorities and funding and creates accountability for new and continued investment.

²⁴ Center for Strategic and International Studies (CSIS), "Harnessing Multilateral Financing for Health Security Preparedness," CSIS Briefs, April 2019, www.csis.org/analysis/harnessing-multilateral-financing-health-security-preparedness.

²⁵ Ibid.

Small Island Nations Need Special Support and Resources

When a Zika virus outbreak initially isolated in Uganda's Zika Forest unexpectedly emerged across several Pacific island states in 2007, Yap Island was hit particularly hard. More than 70% of those living on the tiny Micronesia island—5,000 people—were infected. Several years later, a Zika outbreak in French Polynesia from 2013 to 2014 resulted in 30,000 infections before spreading to seven additional island states in the region.^a

The GHS Index underscores the tenet that no country is prepared unless all are prepared, but small island nations face unique challenges in preventing, detecting, and responding to infectious diseases. Public health spending as a percentage of overall government spending is typically low; healthcare infrastructure and technologies are frequently lacking; and health workforce capacities remain limited, despite a rapidly increasing need for resources due to growing populations, large burdens of both communicable and non-communicable diseases, and increasing vulnerability to severe weather and other consequences of climate change.^b

GHS Index findings highlight the vulnerability: apart from Iceland and Cyprus, every island country with a population below one million people scores well below the GHS Index global average. For the 40 Small Island Developing States (SIDS)^c included in the Index, the average overall score is 28.9. Of the SIDS, only Singapore scores above the global average of 40.2.

Developing workable solutions is challenging. Small island states tend to have smaller populations, with less specialized bureaucratic and health structures. Although many have formal or informal relationships with larger countries and agreements to share supplies, send samples for complex testing, and fulfill other critical needs, long distances between island countries and their neighbors make such arrangements difficult to effectively maintain.

Furthermore, in a pandemic, demand for resources likely would exceed available surge capacity, making it even more difficult for small nations to procure needed drugs, vaccines, therapeutics, or other resources. Larger countries might opt to first focus on meeting national rather than regional or global demands for health services and medical countermeasures—a phenomenon observed during the 2009 H1N1 influenza pandemic.^d

This is why the GHS Index takes a nation-by-nation look at the availability of resources. Although it may make sense for countries to form agreements and share resources, examining the potential limitations of this approach is also important. Countries should know that such agreements may not be operationally feasible during large public health emergencies.

^a World Health Organization, "One Year into the Zika Outbreak: How an Obscure Disease Became a Global Health Emergency," www.who.int/emergencies/zika-virus/articles/one-year-outbreak/en/index1.html.

^b World Health Organization, "Small Island Developing States: Health and WHO," Country Presence Profile no. WHO/CCU/17.08, 2017, apps.who.int/iris/bitstream/handle/10665/255804/WHO-CCU-17.08-eng.pdf?sequence=1; Eva Jarawan and Carmen Carpio, "Health Challenges in the Small Island Developing Countries of the Pacific and the Caribbean," PowerPoint presentation, www.worldbank.org/content/dam/Worldbank/Health%20challenges%20in%20SIDS%20of%20pacific%20and%20caribbean.pdf; Tedros Adhanom Ghebreyesus and Patricia Espinosa, "Health, Climate and Small Island States," Bulletin of the World Health Organization 96, no. 2 (2018): 77–144, www.who.int/bulletin/volumes/96/2/17-206474/en/.

^c The Small Island Developing States group includes 38 UN members and 20 non-UN members and associate members. For a full list, see United Nations, Sustainable Development Goals Knowledge Platform, <https://sustainabledevelopment.un.org/topics/sids/list>.

^d The National Academies, The Domestic and International Impacts of the 2009-H1N1 Influenza A Pandemic: Global Challenges, Global Solutions—Workshop Summary (Washington, D.C.: National Academies Press, 2010), www.ncbi.nlm.nih.gov/books/NBK52789/; David Fidler, "Negotiating Equitable Access to Influenza Vaccines: Global Health Diplomacy and the Controversies Surrounding Avian Influenza H5N1 and Pandemic Influenza H1N1," PLoS Medicine 7, no. 5 (2010): e1000247, <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1000247>.

Political will for health security preparedness financing is low. In 2017, the International Working Group on Financing Preparedness suggested that improved preparedness might cost less than \$1 per person per year in a number of middle- and low-countries.²⁶ Achieving this goal will require not only political will and financial investment, but also rigorous tracking and budgeting against specific benchmarks for improvement.

The data

- Only 5% of countries score in the top tier for financing. These include a mixture of high- and middle-income countries (e.g., Denmark, Finland, Indonesia, Sweden, the United Kingdom, the United States) and low-income countries (Cambodia, Liberia, Sierra Leone).
- Although most countries have invested some financing in improving health security capacities—either at home or abroad—only one country, Liberia, has published a description of specific funding from its national budget to fill gaps identified within the WHO JEE, OIE PVS, or NAPHS.
- Only 10% of countries have shown evidence of senior leaders' commitment, for example, at the ministerial level, to improve local or global health security capacity.

Recommendations

- Health security preparedness financing should be treated as a top priority for global health and international defense, peace, and security. It should be tracked by a specific, globally recognized entity and briefed annually to heads of state. This could be achieved through the Global Preparedness Monitoring Board, the World Bank, the Global Health Security Agenda Steering Group, and/or the Office of the UN Secretary-General. Domestic financing for health security should be urgently increased. National leaders should prioritize domestic finances to invest in health security capacity development. Health security financing should be transparent and tied to benchmarks within national action plans to ensure that countries take measurable steps to build and sustain health security and determine whether specific assistance is improving functional capability.

Decision makers should immediately consider the creation of new mechanisms for health security preparedness financing that incentivize measurable improvements. These could include a multilateral global health security matching fund, expansion of availability of World Bank IDA allocations to allow for preparedness financing, and/or the development of other new ways to expand resources to incentivize countries to prioritize preparedness funding.

International leaders should examine the availability of financing to support rapid and complete response to outbreaks with the potential for international spread. The UN should track and publish outbreak-related costs and contributions so that there is a single, transparent assessment for donors and responders.

²⁶ International Working Group on Financing Preparedness, "From Panic and Neglect to Investing in Health Security: Financing Pandemic Preparedness at a National Level," December 2017, <http://documents.worldbank.org/curated/en/979591495652724770/pdf/115271-REVISED-FINAL-IWG-Report-3-5-18.pdf>.

Political Insecurity Drives Higher Epidemic and Pandemic Risks

Early-August 2019 reports on the Ebola outbreak in eastern Democratic Republic of Congo (DRC) were chilling. Amid increased violence in the affected region, the World Health Organization (WHO) reported interruptions in efforts to contain the outbreak. These interruptions coupled with concerns about high rates of population movement from outbreak-affected areas to other parts of the DRC and neighboring countries, increase the risk of geographical spread.^a

The situation in the DRC—a terrifying scenario for communities at risk, healthcare workers, and international aid organizations alike—illustrates why conflict settings are major flashpoints for epidemics and pandemics. In areas of violence and insecurity, rumors and miscommunication are rampant, people mistrust authority and are afraid to seek treatment, healthcare workers cannot access patients and become more vulnerable to disease themselves, and badly needed aid from outside the country or region is more difficult to bring.

Although DRC has had great success in containing outbreaks of Ebola within its borders, the outbreak that began in the east of the country in 2018 has now become the second-deadliest Ebola outbreak the world has ever seen.

The GHS Index highlights the risks posed by social unrest and political insecurity, as well as the importance of factoring in government effectiveness as part of epidemic and pandemic preparedness in countries around the world. On key indicators related to political and security risk, an alarming 55% of countries score in the bottom and middle tiers. Only approximately 15% of countries score in the highest tier for public confidence in government, and only 23% of countries score in the top tier for political system and government effectiveness.

^a World Health Organization, "Ebola Virus Disease—Democratic Republic of the Congo," 2019, www.who.int/csr/don/08-august-2019-ebola-drc/en/.

FINDING

More than half of countries face major political and security risks that could undermine national capability to counter biological threats.

Country abilities to effectively prevent, detect, and respond to disease outbreaks can be significantly impacted by the broader national risk environment. Countries experiencing localized or widespread armed conflict, regions experiencing social unrest, and countries with less effective territorial control may have greater difficulty containing outbreaks once they begin.

The GHS Index finds that 55% of countries score in the bottom and middle tiers for indicators relating to political and security risk, and nearly 61% of the global population lives in a country that scores in the bottom or middle tier. Importantly, the GHS Index highlights that countries with

effective governance and political systems have higher overall GHS Index scores, and few countries score in the top tier for political system and government effectiveness. In addition, public confidence in government is generally low, which could affect the ability of governments to relay effective messages during biological crises.

Why it matters

Conflict settings can exacerbate epidemic and pandemic risk. Countries in conflict may be at a heightened risk of uncontrolled disease spread due to the higher probability of weak health systems, interruptions to routine disease

surveillance and immunization programs, and societal mistrust of government-delivered health messages.²⁷ Therefore, when outbreaks occur in countries with high political and security risks, containing disease before it spreads across borders will likely require a swift, well-resourced, and highly coordinated global response.

The ongoing deadly outbreak of Ebola in the Democratic Republic of Congo (DRC) has demonstrated how difficult it is to contain the spread of disease in areas of violence and insecurity, increasing the likelihood of disease spreading to neighboring countries. Although DRC has had great success in containing prior incidences of Ebola within its borders, the outbreak that began in 2018 in Kivu has become the second-deadliest Ebola outbreak the world has ever seen—likely owing to security risks present in the affected region. Syria, which received the lowest possible score in measurements of political and security risks, experienced the reemergence of wild poliovirus and circulating vaccine-derived poliovirus following the start of its civil war. Although Syria's polio outbreaks were stopped through a concerted, internationally supported vaccination campaign, the risk of polio and other emerging infectious diseases remains high.

The data

- The GHS Index finds that 55% of countries score in the bottom and middle tiers for indicators relating to political and security risks, including political system and government effectiveness, orderly transfers of power, social unrest, terrorism, armed conflict, government territorial control, and international tensions.
- Only 15% of countries score in the highest tier for public confidence in government.

- Countries with effective governance and political systems have higher overall GHS Index scores. Yet, only 23% of countries—representing approximately 14% of the global population—score in the top tier for political system and government effectiveness, a troubling finding given that ineffective governance and other risk factors such as social unrest, armed conflict, and orderly transfers of power are likely to undermine the global response to a high-consequence biological threat.
- The 10 countries that scored the lowest for the GHS Index indicator relating to armed conflict also each scored below 50 on their overall GHS Index score.

Recommendations

- National governments, donors, and outbreak response organizations should develop plans for assisting countries with challenging risk environments when disease outbreaks occur and should bolster preparedness in countries bordering those at increased risk.
- National governments and donors should take into account countries' risk factors for significant disease outbreaks when making resources available to support health security capacity development. Countries with low scores related to their overall risk environment should be identified as priority areas for capacity development and should receive prompt international assistance when infectious disease emergencies occur within their borders.
- The UN Security Council should urgently convene a series of meetings aimed at the development of rapid response capabilities, strategies, workforce, and protections necessary for outbreaks that originate in or spread to countries with high political or security risks.

²⁷ World Health Organization, "WHO Report on Global Surveillance of Epidemic-Prone Infectious Diseases—Introduction," 2019, www.who.int/csr/resources/publications/introduction/en/index5.html; M. Gayer, D. Legros, P. Formenty, and M. A. Connolly, "Conflict and Emerging Infectious Diseases," *Emerging Infectious Diseases* 13, no. 11 (2007): 1625–1631. www.ncbi.nlm.nih.gov/pubmed/18217543?dopt=Abstract; Habida Elachola et al., "Implications of Converging Conflicts, Emergencies, and Mass Gatherings for Global Health Security," *Lancet* 6, no. 8 (2018): PE834–PE835, [www.thelancet.com/journals/langlo/article/PIIS2214-109X\(18\)30256-0/fulltext](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30256-0/fulltext).

FINDING

Most countries lack foundational health systems capacities vital for epidemic and pandemic response.

Within the GHS Index, the average score is lowest for the set of indicators that relate to the robustness of the overall health system and health workforce—a troubling finding as recent outbreaks have shown that health system capacities are critical to stopping transmission.²⁸ For example, poor infection control practices within hospitals contributed to the nosocomial spread of both Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome.

During the West Africa Ebola outbreak, the lack of proper personal protective equipment and workforce training put healthcare workers and patients at risk for infection. Additionally, individuals were dissuaded from seeking care at healthcare facilities due to fear of contagion, further facilitating community-wide transmission.

The absence of a functioning health system and robust public health and healthcare workforces during an epidemic or pandemic would preclude a country's ability to detect emergent threats, identify and treat cases, and prevent further disease transmission. By treating health system capacities as critical determinants of global health security, the GHS Index highlights synergies between efforts aimed at enhancing health security and ongoing efforts to strengthen systems for delivering routine health services.

Why it matters

Recent disease outbreaks around the world have underscored the importance of building robust capacities for routine healthcare that communities could scale up during emergencies, when the demand for health services escalates. An individual's ability to access healthcare is

paramount for disease surveillance and detection, and to seek evaluation and treatment during an outbreak. Ensuring access to routine health services also can build trust in the healthcare system, making people more likely to seek care during outbreaks.²⁹ Efforts to promote the adoption of Universal Health Coverage (UHC) within countries could help increase health security by improving access and reducing barriers to healthcare and ensuring that there is sustainable financial support for health systems. However, it is important that in trying to implement UHC, national leaders ensure the inclusion of healthcare capacities and capabilities most needed to combat infectious diseases, such as training and access to infection prevention and control measures.

To measure healthcare access and capacities for delivering core health services, the GHS Index asks (a) whether a country has enacted legislation mandating provision of universal health coverage, (b) the percentage of the population with access to skilled birth attendants, and (c) the level of out-of-pocket health expenditures per capita. The GHS Index also assesses whether countries have committed to providing prioritized healthcare services to healthcare workers who become sick as a result of responding to a public health emergency, helping ensure the preservation and safety of the healthcare workforce.

A community's overall health is also highly dependent on the availability of skilled healthcare workers and public health practitioners. Without access to these professionals, the overall health of individuals and

²⁸ Eduardo A. Undurraga et al., "Potential for Broad-Scale Transmission of Ebola Virus Disease during the West Africa Crisis: Lessons for the Global Health Security Agenda," *Infectious Diseases of Poverty* 6, no. 1 (2017): 159, idpjournal.biomedcentral.com/articles/10.1186/s40249-017-0373-4; Sanjana J. Ravi et al., "Establishing a Theoretical Foundation for Measuring Global Health Security: A Scoping Review," *BMC Public Health* 19, no. 1 (2019), bmcpublhealth.biomedcentral.com/articles/10.1186/s12889-019-7216-0.

²⁹ David L. Heymann et al., "Global Health Security: The Wider Lessons from the West African Ebola Virus Disease Epidemic," *Lancet* 385, no. 9980 (2015): 1884–1901, www.ncbi.nlm.nih.gov/pmc/articles/PMC5856330/pdf/emss-76470.pdf (see UHC and global health security).

communities could decline, because there is no expertise available to treat the sick, provide preventive care, or respond to community-wide health emergencies. The GHS Index captures the importance of having a robust health workforce through indicators that measure available human resources, such as the number of physicians and nurses or midwives per 100,000 people, as well as the presence of a health workforce strategy. However, because the public health workforce incorporates a much larger purview than just those involved in direct patient care, the GHS Index must also account for other necessary roles, such as laboratory staff, epidemiologists, and veterinarians, as well as indicators that address and measure the animal health and epidemiological workforce.

The response to an epidemic or pandemic will also require additional capacities outside those needed for routine day-to-day healthcare delivery. For example, a country may need to acquire potentially life-saving medical countermeasures, such as vaccines and antibiotics, which will need to be dispensed quickly by the health workforce. Regulatory processes may need to be in place to allow for clinical trials or the use of unregistered medical countermeasures. Additional foreign health personnel may need to be brought in to support the response. Stockpiles of personal protective equipment and rooms or units capable of isolating patients with highly communicable diseases may be required. These capacities are each assessed in the GHS Index, helping identify health system gaps in preparedness that may hinder a quick and effective response.

The data

- The category on healthcare, which is not covered by other health security-focused external assessments such as the JEE, was the lowest-scoring category of the six categories in the GHS Index, with an average score of 26.4 and 131 countries scoring in the bottom tier. In addition, the highest score for this category was only 73.8, compared with high scores of more than 80 for all other categories.

- Only 27% of countries can demonstrate the existence of an updated health workforce strategy, and only 3% of countries have shown a public commitment to prioritizing healthcare services for healthcare workers who become sick as a result of participating in a public health response.
- Robust community healthcare capacities (i.e., in clinics and hospitals) showed strong association with the overall index score. But more than 71% and more than 79% of countries earned low scores for physician density and nurse/midwife density per 100,000 population, respectively.
- Even high-income countries have weaknesses in their health systems. For example, the United States scores in the bottom tier of countries for the access to healthcare subindicator owing to lack of governmentally guaranteed access to healthcare plus high out-of-pocket expenditures per capita.
- Whereas nearly 50% of countries publicly demonstrate that they have access to medical countermeasures either through their own stockpiles or through agreements with other countries, only a little more than 10% of countries show evidence of having developed plans to dispense medical countermeasures during an emergency.

Recommendations

- Government decision makers should explicitly measure and take into account health system capabilities as an integral part of all health security planning, investments, and financing strategies. National and global efforts to promote UHC have the potential to advance health security; however, in adopting these measures, leaders should ensure the inclusion of capabilities needed to prevent the emergence and spread of epidemics and pandemics.

Thailand: An Exemplar

From May to July 2015, public health experts and leaders in Asia and around the world anxiously watched an alarming and deadly outbreak of the Middle East Respiratory Syndrome (MERS) in South Korea, which sickened 186 and killed 38.^a On June 18 of that year, Thailand notified the World Health Organization (WHO) of its first confirmed case—a 75-year-old man who had traveled from Oman to Bangkok.^b

Despite concerns that the disease would start spreading, Thailand was able to stop its first MERS case—and each subsequent confirmed case—with no further spread.^c Thailand's success in identifying and stopping MERS is just one example of both the value of health security capacity building and the critical role that a strong healthcare system can play in stopping outbreaks at the source.

Thailand is the only middle-income country to score in the highest tier (i.e., an overall score between 66.7 and 100) of the Global Health Security Index, receiving the sixth-highest overall score (73.2). Thailand is also the only country from the WHO South-East Asia Region to rank in the top tier. What makes Thailand such a strong performer? The country shows robust healthcare capacities, ranking second across all nations for indicators relating to healthcare access. Relevant to its ability to identify and stop infectious diseases like MERS, Thailand also demonstrates an effective system for monitoring and tracking healthcare-associated infections. It is also one of only five countries demonstrating a public priority for providing healthcare services to healthcare workers who become sick while responding to public health emergencies.

Beyond its health system, Thailand has a strong field epidemiology training program and national laboratory system, scoring in the top tier for indicators of these capacities and demonstrating a robust electronic reporting surveillance system that functions at both national and subnational levels, rapidly collecting laboratory and epidemiological information. Thailand also demonstrates strength on prevention and response capability, scoring 75.7 and 78.8, respectively, in each of these categories and conducting regular event-based surveillance through a dedicated Situation Awareness Team embedded in the Ministry of Public Health's Emergency Operations Center.

The GHS Index shows that Thailand is, beyond a doubt, an international leader in health security.

^a Myoung-don Oh et al., "Middle East Respiratory Syndrome: What We Learned from the 2015 Outbreak in the Republic of Korea," *Korean Journal of Internal Medicine* 33, no. 2 (2018): 233–246. www.ncbi.nlm.nih.gov/pmc/articles/PMC5840604/; Jun Wang Park et al., "Hospital Outbreaks of Middle East Respiratory Syndrome, Daejon, South Korea, 2015," *Emerging Infectious Diseases* 23, no. 6 (2017): 898–905. wwwnc.cdc.gov/eid/article/23/6/16-0120_article.

^b World Health Organization, "Middle East Respiratory Syndrome Coronavirus (MERS-CoV)—Thailand," June 2015, www.who.int/csr/don/20-june-2015-mers-thailand/en/.

^c Surasak Wiboonchutikul, Weerawat Manosuthi, and Chariya Sangsaja, "Zero Transmission of Middle East Respiratory Syndrome: Lessons Learned from Thailand," *Clinical Infectious Diseases* 64, no. 2 (2017): S167–S170. academic.oup.com/cid/article/64/suppl_2/S167/3782670.

- Senior government officials should take steps to build and maintain robust healthcare and public health workforces, which include but are not limited to physicians, nurses, community health workers, epidemiologists, and other allied health professionals likely to play a major role in preventing, detecting, and responding to biological crises.
- NAPHS should take into account specific benchmarks to improve and finance the overall health system and its workforce.

FINDING

Coordination and training are inadequate among veterinary, wildlife, and public health professionals and policymakers.

One Health approaches are emphasized in health security conversations; however, significant gaps remain in operationalizing this concept. The GHS Index highlights that most countries show no evidence of capacity to integrate data and train professionals across the human, animal, and environmental health sectors.

Why it matters

One Health is the concept that human, animal, and environmental health are intertwined and should be addressed together to prevent the spread of infectious disease. Nearly two-thirds of known pathogens and three-quarters of newly emerging pathogens are zoonotic—spread from animals to humans.³⁰ Human encroachment on wildlife territory and land-use changes increase the rate of human-wildlife and wildlife-livestock interface, expanding the possibility of disease spillover to humans. In addition, increases in the ease and rate of global trade and travel could accelerate the likelihood of disease transmission. The GHS Index contains several indicators that when combined, demonstrate a country's commitment to addressing health threats in a comprehensive manner.

A One Health approach includes the ability to share information between ministries and between countries. Because animals and pathogens do not recognize national borders, addressing environmental risks necessitates strong cross-border collaboration between neighboring countries. One Health should also incorporate coordination among multiple ministries and sectors, because indicators

of animal disease outbreaks could herald a human outbreak risk. However, if there is no mechanism through which multisectoral communication can take place, countries will lack the ability to effectively prevent known risks from developing into outbreaks.

Another key component of the One Health approach is whether the ability of the workforce to provide care and improve a country's resilience to disease outbreaks is dependent on the availability of professionals in the community with access to specialized training. Traditional medical education does not include extensive training for health security topics such as biosecurity, biosafety, infectious disease prevention and control, or the One Health approach.

The availability of specialized training that covers these topics is vital if a country is to have a robust and diverse healthcare workforce. The GHS Index captures the extent to which this specialized training is offered to professionals in-country through questions spanning multiple key categories. Increasing opportunities for professionals to access specialized training will strengthen the public health workforce and cooperation between ministries, which, in turn, may improve a country's ability to prevent, detect, and respond to infectious disease outbreaks.

The data

- Only 30% of countries demonstrate the existence of mechanisms for sharing data among relevant ministries for human, animal, and wildlife surveillance.

³⁰ L. H. Taylor, S. M. Latham, and M. E. Woolhouse, "Risk Factors for Human Disease Emergence," *Philosophical Transactions of the Royal Society London B* 356, no. 1411 (2001): 983–989, www.ncbi.nlm.nih.gov/pmc/articles/PMC1088493/.

One Health Is Key to Preventing Pathogens from Spreading from Animals to Humans

- Fewer than 8% of countries demonstrate a cross-ministerial department, agency, or similar unit dedicated to zoonotic disease.
- Only 51% of countries offer field epidemiological training programs that explicitly include animal health professionals, although a much larger number (80%) offer an applied epidemiological training program.
- 62% of countries have not submitted a report to OIE on the incidence of human cases of zoonotic diseases for the past calendar year.
- The majority of countries are facing land-use changes, measured by percentage change in forest area, which could affect the risk of emerging zoonotic disease.

Recommendations

- National public and animal health authorities should coordinate during the development of NAPHS and should incorporate a One Health approach as part of pandemic planning and national disaster preparedness and response efforts.
- Countries should identify an agency and grant it authority to coordinate training and information sharing among human, animal, and environmental health professionals for outbreak preparedness and response.
- Decision makers should consider infectious disease risks when developing policies and plans related to climate change, land use, and urban planning.

Today, nearly two-thirds of known pathogens and three-quarters of newly emerging pathogens are zoonotic—meaning they spread from animals to humans.^a This dangerous trend toward disease spillover from animals to humans can be traced to a host of modern-day factors, including increased human encroachment on wildlife territory, land-use changes that increase the rate of human-wildlife and wildlife-livestock interface, and climate change.

Because human, animal, and environmental health are intertwined and must be effectively addressed together to prevent the spread of infectious disease, the Global Health Security Index assesses countries' adherence to a One Health approach. The results are not encouraging:

- Fewer than 30% of countries demonstrate the existence of mechanisms for sharing data among relevant ministries for human, animal, and wildlife surveillance.
- Fewer than 8% of countries demonstrate a cross-ministerial department, agency, or similar unit dedicated to zoonotic disease.
- Only 51% of countries offer field epidemiological training programs that explicitly include animal health professionals, although a much larger number (80%) offer an applied epidemiological training program.
- 62% of countries have not submitted a report to the World Organisation for Animal Health on the incidence of human cases of zoonotic diseases for the past calendar year.
- The majority of countries are facing land-use changes, measured by percentage change in forest area, which could affect the risk of emerging zoonotic disease.

As a way forward, countries must embrace a One Health approach as part of pandemic planning and national disaster preparedness and response efforts. Authorities should identify an agency and grant it authority to coordinate training and information sharing among human, animal, and environmental health professionals, and decision makers should consider infectious disease risks when developing policies and plans related to climate change, land use, and urban planning.

^a L. H. Taylor, S. M. Latham, and M. E. Woolhouse, "Risk Factors for Human Disease Emergence," Philosophical Transactions of the Royal Society London B 356, no. 1411 (2001): 983–989, www.ncbi.nlm.nih.gov/pmc/articles/PMC1088493/.

FINDING

Improving country compliance with international health and security norms is essential.

It is the responsibility of national governments to publicly demonstrate to their own populations, neighboring countries, and the international community that they have the necessary capacities to prevent, detect, and respond to epidemics and pandemics within their borders and to help the broader global community do the same.

In a positive recent trend, as of May 24, 2019, 83 countries—43% of the countries in the GHS Index—had published a WHO JEE, markedly increasing transparency of country preparedness for epidemics and pandemics. The GHS Index draws from those evaluations and also provides credit for countries that have conducted and published a WHO JEE because completing such an assessment is an important step toward promoting transparency and accountability.

However, despite this important progress, the GHS Index finds major gaps in country adherence to international norms and commitments. For example, although more than 90% of countries have signed and ratified the Biological Weapons Convention (BWC) and submitted reports under United Nations Security Council Resolution (UNSCR) 1540, less than half of the countries in the GHS Index score in the top tier for indicators related to transparency and implementation of these important international agreements. In addition, 31% of countries do not show evidence of a cross-border agreement on public health emergency response.

Why it matters

Strong ethical and normative frameworks are an important complement to existing legal and regulatory health security measures, including compliance with the IHR (2005),

as well as the BWC, a multilateral disarmament treaty banning the development, production, and stockpiling of biological weapons.

Efforts to promote globally recognized norms and to make international health security-related commitments start at the highest levels of national government and serve as a guide for internal policies and standards for accountability. The GHS Index highlights the importance of compliance with such norms and commitments in strengthening global health security.

The data

- Less than half of all countries have submitted Confidence-Building Measures for the BWC in the past three years.
- Fewer than 40% of countries participate in two or more important voluntary multilateral coalitions dedicated to preventing, detecting, and responding to biological threats and other weapons of mass destruction, such as the Global Health Security Agenda, Australia Group, and G-7 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.
- 93% of countries have submitted a UNSCR 1540 report, but only 30% of countries score “good” or “very good” on UNSCR 1540 implementation measures related to legal frameworks and enforcement for countering biological weapons.³¹
- Only 5% of countries have in place a publicly available plan or policy for sharing genetic data, clinical specimens, and/or isolated biological materials that extends beyond influenza.

³¹ Countries receive scores reflecting the extent of implementation of UNSCR 1540. Scoring is based on an evaluation of the total number of elements of UNSCR 1540 that have been implemented as reflected in the individual country matrices, including submission of data specific to biological threats. For more about the GHS Index methodology, see page 61.

Governments are Unable to Keep Up with Biological Risks and New Technologies

- 31% of countries do not show evidence of a cross-border agreement on public health emergency response. More than 60% of countries lack evidence of a similar agreement on animal health emergency response.
- Only 28% of countries publicly show that they incorporate epidemics and pandemics in their national risk reduction strategy or have in place a stand-alone, national risk-reduction strategy for pandemics.
- The 45% of countries that have conducted and published a WHO JEE or precursor evaluation (e.g., Global Health Security Agenda pilot assessment)³² earned higher scores for this category because completing a JEE is an important step toward promoting transparency and accountability.

Recommendations

- Countries should regularly undergo and publish a WHO JEE to increase transparency around global health security capacities and capabilities. This, in turn, also would help promote increased availability and transparency for health security data in the public domain.
- Countries should establish national protocols, and work to negotiate regional and global protocols, for rapidly sharing genetic materials and specimens during public health emergencies.
- National health authorities should develop epidemic- and pandemic-specific preparedness and response strategies as part of routine disaster and broader national security planning efforts.

In 2018, scientists in Canada successfully synthesized horsepox—a virus related to smallpox, one of the greatest scourges the world has ever faced—demonstrating how viral synthesis could threaten global disease eradication efforts. The experiment illustrated a significant problem: no globally accepted mechanisms exist for identifying risks associated with experiments that synthesize new, dangerous, engineered, or eradicated agents—or those that could enhance transmissibility and virulence of pathogens with pandemic potential, like influenza.

There is no question that advances in genomics, synthetic biology, and microbiology are essential for a safer, healthier, and more secure society. New technologies are vital for achieving health security and sustainable development. At the same time, advances such as low-cost deoxyribonucleic acid (DNA) synthesis and widespread access to gene editing tools are making it easier, faster, and cheaper for a broader array of actors to create and engineer dangerous biological agents. Combined with global trends in trade, travel, and terrorism, the risk of a deliberate or accidental high-consequence biological event^a is increasing.

To keep up with the technological pace, governments—in cooperation with research funders, academic institutions, and investors—need to rapidly identify concerns and provide effective oversight to reduce the potential for accidental or deliberate release of engineered agents. Although many countries probably have not engaged in dual-use research with especially dangerous pathogens, it is important today that all countries have systems in place to oversee such work.

The GHS Index shows that countries are not prioritizing oversight of these types of emerging biological risks. No country requires providers of synthetic DNA to screen their orders to prevent sharing of materials with questionable parties. Fewer than 5% of countries demonstrate oversight for dual-use research, including for research with especially dangerous pathogens and toxins or pathogens with pandemic potential. Additionally, 92% of countries show no evidence of requiring security checks for personnel with access to dangerous biological materials or toxins, which increases the potential for insider threats. These gaps are dangerous and must be urgently addressed.

^a “High-consequence biological events” are defined here as infectious disease outbreaks that could overwhelm national or international capacity to manage them. For example, although international health security has improved following the 2014–2016 Ebola epidemic in West Africa, countries and international responders are not prepared to quell outbreaks that occur in violent or insecure settings; deliberate biological events that require close coordination and investigative links between security, health, and humanitarian actors; and fast-moving respiratory diseases with high mortality that could spread rapidly to become global pandemics.

³² Countries with completed and published JEE scores were collected through May 24, 2019, for the purposes of printing this report.



Methodology

PREPARED BY THE ECONOMIST INTELLIGENCE UNIT

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EXECUTIVE SUMMARY

In support of global, regional, and domestic efforts to build country preparedness to face global health security risks, the Nuclear Threat Initiative (NTI) commissioned The Economist Intelligence Unit to construct the inaugural edition of the 2019 Global Health Security Index. Building on the knowledge of NTI, the Center for Health Security at the Johns Hopkins Bloomberg School of Public Health (JHU), and international experts, the Index assesses country capacity to address epidemic threats with the goal of highlighting areas in need of additional support and development.

As part of this assessment, the Index examines a range of contextual factors—in addition to country capacity—to prevent, detect, and respond to threats, taking into consideration the national health system, international commitments, and the overall risk environment. The Index is expected to promote dialogue and assist countries in determining the gaps in their preparedness measures through independent monitoring and oversight.

The 2019 Global Health Security Index includes research for 195 countries. The Economist Intelligence Unit conducted the research for this Index through a combination of qualitative assessments of publicly available country information and examinations of existing quantitative data sets. Given the complex nature of global health security, The Economist Intelligence Unit developed a multidimensional analytical framework, commonly known as a *benchmarking index*, in order to create an objective, country-level assessment tool. A multidimensional framework is a useful way of measuring performance that cannot be directly observed, such as a country's economic competitiveness or, in this case, a country's health security conditions. Indices, in such cases, have been shown to be effective in several ways: (a) they can aggregate a wide range of related data and evaluate it in a consistent manner; (b) they can track outcomes over time; and (c) they

can spur countries to improve performance, especially relative to other countries in the index. In this way, indices can be a useful tool for public policy reforms.

The Economist Intelligence Unit follows a defined process for the development of index frameworks, which is based on what is desirable to measure and not on which indicators are available. Transparency is essential in constructing credible indicators and entails the following:

- **Defining the concept:** The definition should give the reader a clear sense of what the composite index is measuring. It should refer to the theoretical framework, linking various subgroups and the underlying indicators.
- **Determining subgroups:** Multidimensional concepts can be divided into several subgroups (e.g., categories, indicators, subindicators). These subgroups need not be (statistically) independent of each other, and existing links should be described theoretically or empirically to the greatest extent possible.
- **Identifying the selection criteria for the underlying indicators and questions:** The selection criteria should work as a guide to determine whether an indicator should be included or not in the overall composite index.

Behind each index project is underlying data architecture, or an indicator framework, that supports the measurement of a certain topic. The indicator frameworks include a set of indicators, quantitative or qualitative in nature, divided into distinct categories. Quantitative indicators are those numeric data points collected by governments, international organizations, and other agencies that are usually downloadable from public sources (such as the number of doctors in country and immunization rates). Qualitative indicators are those measures that are more subjective in nature and evaluate concepts not easily captured in databases, such as the existence of particular policies or the extent of their implementation.

The framework for the Global Health Security Index was developed over an 18-month period, which included a pilot phase. In consultation with NTI and the JHU Center for Health Security, The Economist Intelligence Unit developed an initial pilot framework. This framework was based on project team analysis, literature review, and standard accepted measurements for global health security as captured in the International Health Regulations Joint External Evaluation tool and elsewhere.

Following this initial process, The Economist Intelligence Unit, NTI, and the JHU Center for Health Security convened an International Panel of Experts to provide insights and commentary on the proposed framework. The first International Panel of Experts meeting was held in April 2017 in London and included a diverse group of experts from a variety of nations and specialties within the field of global health security. During the meeting, experts offered insights and recommendations on the proposed structure, questions, and data sources for the Global Health Security Index. The panel insights were augmented by additional discussions with experts in the field, such as experts on One Health and epidemiology.

Following the expert panel meeting, the framework was updated and finalized for the pilot phase. The Economist Intelligence Unit undertook research for four countries representing different political, socioeconomic, and geographic identities to assess data availability for the proposed questions, as well as the value provided by the research insights. After the successful conclusion of the pilot phase, The Economist Intelligence Unit, NTI, and the JHU Center for Health Security further refined the framework (with additional expert consultations) to develop the final research framework.

To limit the degree of subjectivity in the qualitative indicators, The Economist Intelligence Unit created questions that are, whenever possible, framed as a binary choice (yes or no; or 1 or 0). For example, if a country meets a certain criteria, it is awarded one point; if it does not, it scores a zero. A binary approach limits the risk of subjectivity and increases the likelihood that the same scores for a particular indicator would be obtained by a different set of researchers, a key measure of objectivity and analytical rigor. If a binary approach was not appropriate, the research team provided specific scoring options and guidance on how to score each indicator. All qualitative indicators were designed so they could be answered using publicly available information.

The indicators in the 2019 Global Health Security Index are embedded in a model (available as an Excel workbook at www.ghsindex.org) that offers a wide range of analytical tools, thereby allowing a deeper investigation into measures of global health security. For example, users can filter countries by region, population, or income level, or directly compare any two countries. A user can also examine correlations between indicators. Individual country profiles, which include the consulted sources and scoring justifications, are also included in the 2019 Global Health Security Index model, thus permitting a deeper dive into the health security conditions in a given country.

Although the Global Health Security Index model relies on expert weights for analysis, the weights assigned to each indicator can be changed by the user to reflect different assumptions about the importance of categories and indicators.

Finally, the model allows the final scores to be benchmarked against external factors that may potentially influence global health security, such as GDP per capita and the United Nations Development Programme's (UNDP) Human Development Index.

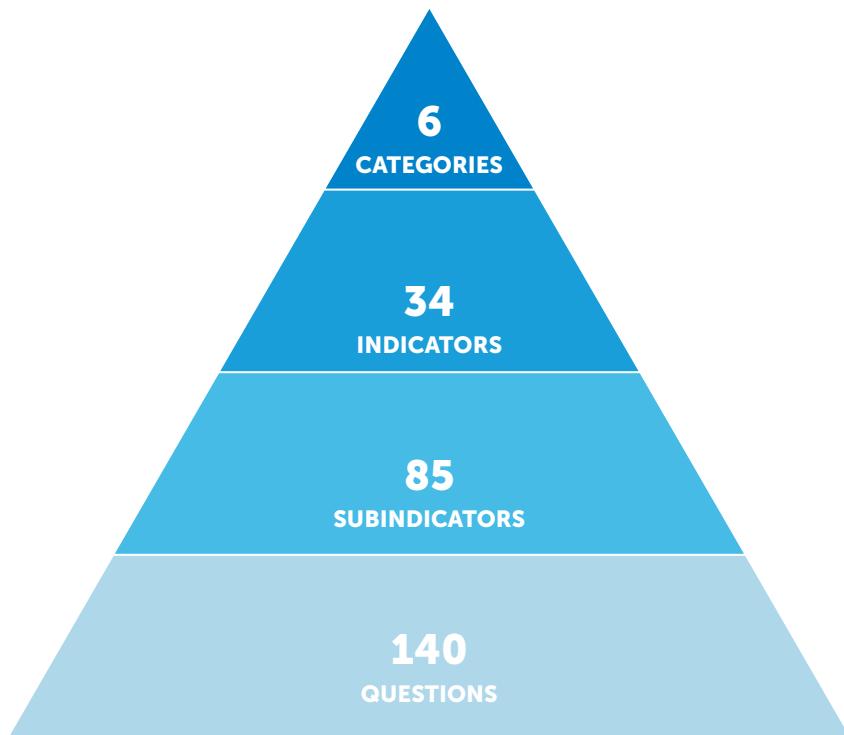
SCORING CRITERIA AND CATEGORIES

The 2019 Global Health Security Index consists of 140 questions grouped into 34 indicators across 6 overarching categories (see Figure A1). The Index includes research for 195 countries that compose the States Parties³³ to the International Health Regulations (IHR [2005]).³⁴

The overall score (0–100) for each country is a weighted sum of the six categories. Each category is scored on a scale of 0 to 100, in which 100 represents the most favor-

able health security conditions and 0 represents the least favorable conditions. A score of 100 does not indicate that a country has perfect national health security conditions; likewise, a score of 0 does not mean that a country has no capacity. Instead, the scores of 100 and 0 represent the highest or lowest possible score, respectively, as measured by the Global Health Security Index criteria. Each category is normalized on the basis of the sums of its underlying indicators and subindicators, and a weight is then applied. The default weights used in the ranking are based on input from the International Panel of Experts and reflect the relative importance and relevance of each indicator and category. The weights in the model, however, are dynamic and can be changed by users.

FIGURE A1. GLOBAL HEALTH SECURITY INDEX FRAMEWORK



³³ As of April 16, 2013, there are 196 States Parties to the International Health Regulations (IHR [2005]), including the Holy See. The Holy See, as the supreme body of government of the Roman Catholic Church, is a sovereign juridical entity under international law, but it was not included in the country-specific research for this Index in light of the Vatican Constitution's express provision of Italian laws on contagious diseases (see John R. Morss, "The International Legal Status of the Vatican/Holy See Complex," *European Journal of International Law* 26, no. 4 [2015]: 927–946, <https://academic.oup.com/ejil/article/26/4/927/2599610>). Therefore, for the purposes of this report, we will refer to the assessed "States Parties" as "195 countries."

³⁴ The World Health Organization International Health Regulations (IHR [2005]) are the foundational international standards for health. IHR is a binding legal instrument to address cross-border public health risks. The goal of IHR is to prevent, protect, control, and respond without disrupting international trade and traffic, and the contents of which were used as the guiding regulation behind many of the indicators included in the Global Health Security Index.

The six categories are as follows:



PREVENT

1. PREVENTION: *Prevention of the emergence or release of pathogens*, including those constituting an extraordinary public health risk in keeping with the internationally recognized definition of a Public Health Emergency of International Concern.³⁵ Indicators in this category assess antimicrobial resistance, zoonotic disease, biosecurity, biosafety, dual-use research and culture of responsible science, and immunization.



DETECT

2. DETECTION AND REPORTING: *Early detection and reporting for epidemics of potential international concern*,³⁶ which can spread beyond national or regional borders. Indicators in this category assess laboratory systems; real-time surveillance and reporting; epidemiology workforce; and data integration between the human, animal, and environmental health sectors.



RESPOND

3. RAPID RESPONSE: *Rapid response to and mitigation of the spread of an epidemic*. Indicators in this category assess emergency preparedness and response planning, exercising response plans, emergency response operation, linking public health and security authorities, risk communication, access to communications infrastructure, and trade and travel restrictions.



HEALTH

4. HEALTH SYSTEM: *Sufficient and robust health system to treat the sick and protect health workers*.

Indicators in this category assess health capacity in clinics, hospitals, and community care centers; medical countermeasures and personnel deployment; healthcare access; communications with healthcare workers during a public health emergency; infection control practices and availability of equipment; and capacity to test and approve new countermeasures.



NORMS

5. COMPLIANCE WITH INTERNATIONAL NORMS: *Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms*.

Indicators in this category assess IHR reporting compliance and disaster risk reduction; cross-border agreements on public health emergency response; international commitments; completion and publication of WHO JEE and the World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) Pathway assessments; financing; and commitment to sharing of genetic and biological data and specimens.



RISK

6. RISK ENVIRONMENT: *Overall risk environment and country vulnerability to biological threats*.

Indicators in this category assess political and security risk; socioeconomic resilience; infrastructure adequacy; environmental risks; and public health vulnerabilities that may affect the ability of a country to prevent, detect, or respond to an epidemic or pandemic and increase the likelihood that disease outbreaks will spill across national borders.

Each indicator within the six categories contains up to seven underlying subindicators. Principal components analysis (PCA) was also conducted on the model to ensure the relevance and robustness of the chosen indicators and categories. The use of PCA is described on page 80.

The categories, indicators, and subindicators are shown in Table A1.

³⁵ World Health Organization, "IHR Procedures Concerning Public Health Emergencies of International Concern (PHEIC)," www.who.int/ihr/procedures/pheic/en/.

³⁶ Ibid.

TABLE A1. GLOBAL HEALTH SECURITY INDEX FRAMEWORK BY CATEGORIES, INDICATORS, AND SUBINDICATORS

1 PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS	
1.1	Antimicrobial resistance (AMR)
1.1.1	AMR surveillance, detection, and reporting
1.1.2	Antimicrobial control
1.2	Zoonotic disease
1.2.1	National planning for zoonotic diseases/pathogens
1.2.2	Surveillance systems for zoonotic diseases/pathogens
1.2.3	International reporting of animal disease outbreaks
1.2.4	Animal health workforce
1.2.5	Private sector and zoonotic disease
1.3	Biosecurity
1.3.1	Whole-of-government biosecurity systems
1.3.2	Biosecurity training and practices
1.3.3	Personnel vetting: Regulating access to sensitive locations
1.3.4	Transportation security
1.3.5	Cross-border transfer and end-user screening
1.4	Biosafety
1.4.1	Whole-of-government biosafety systems
1.4.2	Biosafety training and practices
1.5	Dual-use research and culture of responsible science
1.5.1	Oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research
1.5.2	Screening requirements for providers of genetic material
1.6	Immunization
1.6.1	Vaccination rates

2 EARLY DETECTION AND REPORTING EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN

2.1 Laboratory systems

2.1.1 Laboratory capacity for detecting priority diseases

2.1.2 Specimen referral and transport system

2.1.3 Laboratory quality systems

2.2 Real-time surveillance and reporting

2.2.1 Indicator and event-based surveillance and reporting systems

2.2.2 Interoperable, interconnected, electronic real-time reporting systems

2.2.3 Transparency of surveillance data

2.2.4 Ethical considerations during surveillance

2.2.5 Coverage and use of electronic health records

2.3 Epidemiology workforce

2.3.1 Applied epidemiology training program, such as the field epidemiology training program, for public health professionals and veterinarians (e.g., Field Epidemiology Training Program and Field Epidemiology Training Program for Veterinarians)

2.3.2 Epidemiology workforce capacity

2.4 Data integration between human, animal, and environmental health sectors

2.4.1 Data integration between human, animal, and environmental health sectors

TABLE A1. GLOBAL HEALTH SECURITY INDEX FRAMEWORK BY CATEGORIES, INDICATORS, AND SUBINDICATORS *continued*

3 RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC	
3.1	Emergency preparedness and response planning
3.1.1	National public health emergency preparedness and response plan
3.1.2	Private sector involvement in preparedness and response
3.2	Exercising response plans
3.2.1	International Health Regulations (IHR) simulation exercises
3.3	Emergency response operation
3.3.1	Emergency response operation
3.4	Linking public health and security authorities
3.4.1	Public health and security authorities are linked for rapid response during a biological event
3.5	Risk communication
3.5.1	Risk communication systems
3.5.2	Public communication
3.6	Access to communications infrastructure
3.6.1	Internet users
3.6.2	Mobile subscribers
3.6.3	Female access to a mobile phone
3.6.4	Female access to the Internet
3.7	Trade and travel restrictions
3.7.1	Government restriction of trade and travel
3.7.2	Non-government restriction of trade and travel

4	SUFFICIENT AND ROBUST HEALTH SYSTEM TO TREAT THE SICK AND PROTECT HEALTH WORKERS
4.1	Health capacity in clinics, hospitals, and community care centers
4.1.1	Available human resources for the broader healthcare system
4.1.2	Facilities capacity
4.2	Medical countermeasures and personnel deployment
4.2.1	Capacity to acquire medical countermeasures
4.2.2	System for dispensing medical countermeasures (MCM) during a public health emergency
4.2.3	System for receiving foreign health personnel during a public health emergency
4.3	Healthcare access
4.3.1	Access to healthcare
4.3.2	Healthcare worker access to healthcare
4.4	Communications with healthcare workers during a public health emergency
4.4.1	Communication with healthcare workers
4.5	Infection control practices and availability of equipment
4.5.1	Infection control equipment availability
4.5.2	Healthcare-associated infection (HCAI) monitoring
4.6	Capacity to test and approve new medical countermeasures
4.6.1	Regulatory process for conducting clinical trials of unregistered interventions
4.6.2	Regulatory process for approving medical countermeasures

TABLE A1. GLOBAL HEALTH SECURITY INDEX FRAMEWORK BY CATEGORIES, INDICATORS, AND SUBINDICATORS *continued*

5 COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING PLANS TO ADDRESS GAPS, AND ADHERENCE TO GLOBAL NORMS	
5.1	International Health Regulations (IHR) reporting compliance and disaster risk reduction
5.1.1	Official IHR reporting
5.1.2	Integration of health into disaster risk reduction
5.2	Cross-border agreements on public health and animal health emergency response
5.2.1	Cross-border agreements
5.3	International commitments
5.3.1	Participation in international agreements
5.3.2	Voluntary memberships
5.4	Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) Pathway
5.4.1	Completion and publication of a Joint External Evaluation (JEE) assessment and gap analysis
5.4.2	Completion and publication of a Performance of Veterinary Services (PVS) assessment and gap analysis
5.5	Financing
5.5.1	Financing under Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) reports and gap analyses
5.5.2	Financing for emergency response
5.5.3	Accountability for commitments made at the international stage for addressing epidemic threats
5.6	Commitment to sharing of genetic and biological data and specimens
5.6.1	Commitment to sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) in both emergency and nonemergency research

6 OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS

6.1 Political and security risk

- 6.1.1 Government effectiveness
- 6.1.2 Orderly transfers of power
- 6.1.3 Risk of social unrest
- 6.1.4 Risk of terrorism
- 6.1.5 Armed conflict
- 6.1.6 Government territorial control
- 6.1.7 International tensions

6.2 Socio-economic resilience

- 6.2.1 Literacy
- 6.2.2 Gender equality
- 6.2.3 Poverty levels
- 6.2.4 Public confidence in government
- 6.2.5 Local media and reporting

6.3 Infrastructure adequacy

- 6.3.1 Adequacy of road network
- 6.3.2 Adequacy of airports
- 6.3.3 Adequacy of power network

6.4 Environmental risks

- 6.4.1 Urbanization
- 6.4.2 Land use
- 6.4.3 Natural disaster risk

6.5 Public health vulnerabilities

- 6.5.1 Access to quality healthcare
- 6.5.2 Access to potable water and sanitation
- 6.5.3 Public healthcare spending levels per capita

INDEX CONSTRAINTS AND OTHER IMPORTANT FACTORS

In researching the 2019 Global Health Security Index, The Economist Intelligence Unit relied solely on publicly available sources, such as laws, regulations, policy documents, and government websites. This research approach has the benefit of creating a fully transparent and repeatable methodology that does not create an additional reporting burden for country officials; however, it also presents some challenges. As a result, the 2019 Global Health Security Index may not capture certain preparations that countries have made to improve their health security status in certain domains. For example, some countries may not have strong e-government policies and may not have published existing laws and policies applicable to this research. Other countries may have elected not to publish certain material that they deem sensitive, such as regulations and policies related to biosecurity, which would then lead to an underestimation of scores in those areas.

Additionally, relying solely on publicly available data has limitations on the types of questions that can be credibly researched. For example, the Index cannot capture processes that are often not publicly documented or available, such as the level of activity of cross-ministerial working groups or the average response time between the identification of an emergency and the initiation of a response.

However, there is immense value in restricting the research scope to publicly available information for two principle reasons: (a) although these limitations could be addressed through an interview process, this approach would create an extra reporting burden for country officials, which can divert attention away from implementation, and (b) there is value in making this information available, both to the international community and to the health workforce within each country. As such, The Economist Intelligence Unit, in consultation with NTI and the JHU Center for Health Security, decided to pursue this approach.

METHODOLOGY

General

The 2019 Global Health Security Index comprises categories that are related to the health security conditions of each country. To score the indicators for the Index, the research team gathered data from the following sources:

- Primary legal texts and legal reports
- Government publications and reports
- Academic publications and reports
- Websites of government authorities, international organizations, and non-governmental organizations
- The Economist Intelligence Unit proprietary country data and reports (specifically Risk Briefing and the Democracy Index)
- Local and international news media reports

See the Selected Bibliography for more information about central sources.

The 2019 Global Health Security Index assessed the capacity of the following 195 countries (listed in alphabetical order) in Table A2.

TABLE A2: COUNTRIES ASSESSED FOR 2019 GLOBAL HEALTH SECURITY INDEX

Afghanistan	China	Guatemala	Maldives
Albania	Colombia	Guinea	Mali
Algeria	Comoros	Guinea-Bissau	Malta
Andorra	Congo (Brazzaville)	Guyana	Marshall Islands
Angola	Congo (Democratic Republic)	Haiti	Mauritania
Antigua and Barbuda	Cook Islands	Honduras	Mauritius
Argentina	Costa Rica	Hungary	Mexico
Armenia	Côte d'Ivoire	Iceland	Micronesia
Australia	Croatia	India	Moldova
Austria	Cuba	Indonesia	Monaco
Azerbaijan	Cyprus	Iran	Mongolia
Bahamas	Czech Republic	Iraq	Montenegro
Bahrain	Denmark	Ireland	Morocco
Bangladesh	Djibouti	Israel	Mozambique
Barbados	Dominica	Italy	Myanmar
Belarus	Dominican Republic	Jamaica	Namibia
Belgium	Ecuador	Japan	Nauru
Belize	Egypt	Jordan	Nepal
Benin	El Salvador	Kazakhstan	Netherlands
Bhutan	Equatorial Guinea	Kenya	New Zealand
Bolivia	Eritrea	Kiribati	Nicaragua
Bosnia and Herzegovina	Estonia	Kuwait	Niger
Botswana	Eswatini (Swaziland)	Kyrgyz Republic	Nigeria
Brazil	Ethiopia	Laos	Niue
Brunei	Fiji	Latvia	North Korea
Bulgaria	Finland	Lebanon	North Macedonia
Burkina Faso	France	Lesotho	Norway
Burundi	Gabon	Liberia	Oman
Cabo Verde	Gambia	Libya	Pakistan
Cambodia	Georgia	Liechtenstein	Palau
Cameroon	Germany	Lithuania	Panama
Canada	Ghana	Luxembourg	Papua New Guinea
Central African Republic	Greece	Madagascar	Paraguay
Chad	Grenada	Malawi	Peru
Chile		Malaysia	Philippines

TABLE A2: COUNTRIES ASSESSED FOR 2019 GLOBAL HEALTH SECURITY INDEX *continued*

Poland	Slovakia	Sweden	Uganda
Portugal	Slovenia	Switzerland	Ukraine
Qatar	Solomon Islands	Syria	United Arab Emirates
Romania	Somalia	Tajikistan	United Kingdom
Russia	South Africa	Tanzania	United States
Rwanda	South Korea	Thailand	Uruguay
Samoa	South Sudan	Timor-Leste	Uzbekistan
San Marino	Spain	Togo	Vanuatu
São Tomé and Príncipe	Sri Lanka	Tonga	Venezuela
Saudi Arabia	St. Kitts and Nevis	Trinidad and Tobago	Vietnam
Senegal	St. Lucia	Tunisia	Yemen
Serbia	St. Vincent and the Grenadines	Turkey	Zambia
Seychelles	Sudan	Turkmenistan	Zimbabwe
Sierra Leone	Suriname	Tuvalu	
Singapore			

Data Review and Validation Process

After completing the research, The Economist Intelligence Unit provided the 195 countries included in the Index with an opportunity to review and comment on The Economist Intelligence Unit's preliminary results. The purpose of this data review and validation process was to ensure the accuracy of the 2019 Global Health Security Index data. Score changes were considered only if there was publicly available evidence that had not been previously uncovered by the research team. Unpublished documents were not considered sufficient evidence, keeping in line with the Global Health Security Index's tenet of the value of publicly available information.

The Economist Intelligence Unit developed country-specific documents that presented all qualitative data for the 2019 Global Health Security Index indicators. The Index research team prioritized qualitative questions over quantitative questions, because these had not been drawn from country-specific sources (e.g., drawn from centralized databases or proprietary Economist

Intelligence Unit databases assessing political stability, effective governance, and corruption). Instead, the questions shared for validation focused on verifying the publication of overarching plans and legislation (such as plans guiding response to public health emergencies or antimicrobial resistance).

The data review and validation form listed the range of possible answers for each subindicator and identified the answer The Economist Intelligence Unit assigned for the country. The forms allowed the reviewer to either agree or disagree with the answer and to provide an alternative answer with supporting evidence. The Economist Intelligence Unit used the submitted responses to reevaluate its scores. In some cases, respondents provided information that resulted in The Economist Intelligence Unit raising a country's score, whereas in other cases, scores were lowered or kept the same. When the responses were unclear, The Economist Intelligence Unit contacted individuals for clarification. Country representatives had two months—May and June—to respond to the data review and validation request.

Of the 195 countries, 16 responded to the data review and validation request: Belgium, Canada, Finland, Italy, the Kyrgyz Republic, Latvia, Liechtenstein, Lithuania, Peru, Philippines, Portugal, Saint Kitts and Nevis, Sierra Leone, Slovenia, Spain, and Switzerland.

Data Modeling

Data were collected across 140 quantitative and qualitative questions. The majority of the qualitative questions are binary (yes or no) questions, although a select few are tiered to have 2 to 4 possible scoring options to capture more nuanced observations. Each question is constructed so that a higher value is associated with more favorable health security conditions.

For example, for the question on personnel vetting to regulate access to locations with sensitive biological materials (1.3.3a), a country that requires drug testing, background checks, and psychological or mental fitness tests is assigned a value of 3, whereas a country that requires only one of the three checks is assigned a value of 1.

Calculation of the 2019 Global Health Security Index

Modeling the subindicators, indicators, and categories in the Global Health Security Index results in overall scores of 0–100 for each country, in which 100 represents the most favorable health security conditions possible and 0 the least favorable. A score of 100 in the Index does not indicate that a country has perfect health security conditions, and a score of 0 does not mean that a country has no

health security capacity. Instead, scores of 100 and 0 represent the highest or lowest possible scores, respectively, as measured by the Index criteria. The questions listed are classified into subindicators, which, in turn, are grouped into indicators. Their values are summed to determine the value of the indicator:

$$\text{indicator score} = \sum \text{weighted individual subindicators}$$

For the Index, the indicators are classified into six categories. The category values are a weighted total of the indicators in the category:

$$\text{category score} = \sum \text{weighted individual indicators}$$

The category values have been normalized on the basis of the following equation:

$$x = (x - \text{Min}(x)) / (\text{Max}(x) - \text{Min}(x))$$

where $\text{Min}(x)$ and $\text{Max}(x)$ are the lowest and highest values, respectively, in the Global Health Security Index (of the 195 countries) for any given indicator. The normalized value (i.e., a score of 0–100) makes it directly comparable with other normalized indicator scores.

Table A3 shows the calculation of a category score for Prevention of the Emergence or Release of Pathogens:

TABLE A3. SAMPLE CATEGORY SCORE FOR A COUNTRY

NUMBER	PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS	NORMALIZED SCORE (0–100)	WEIGHT	WEIGHTED SCORE	SCORE
1	Category score				68.9
1.1	Antimicrobial resistance (AMR)	83.3	16.1%	16.1% of 83.3	13.4
1.2	Zoonotic disease	76.9	17.8%	17.8% of 76.9	13.7
1.3	Biosecurity	62.7	16.1%	16.1% of 62.7	10.1
1.4	Biosafety	50.0	16.1%	16.1% of 50.0	8.1
1.5	Dual-use research and culture of responsible science	33.3	14.4%	14.4% of 33.3	4.8
1.6	Immunization	96.5	19.5%	19.5% of 96.5	18.8

The overall score for each country is the weighted sum of the category scores, as determined by the weighting profile: Overall score = \sum weighted category scores

Table A4 shows the calculation of an overall score:

TABLE A4. SAMPLE OVERALL SCORE FOR A COUNTRY

NUMBER	CATEGORY	NORMALIZED SCORE (0–100)	WEIGHT	WEIGHTED SCORE	SCORE
	OVERALL SCORE				75.6
1	PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS	68.9	16.3%	16.3% of 68.9	11.2
2	EARLY DETECTION AND REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN	97.3	19.2%	19.2% of 97.3	18.7
3	RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC	65.9	19.2%	19.2% of 65.9	12.7
4	SUFFICIENT AND ROBUST HEALTH SYSTEM TO TREAT THE SICK AND PROTECT HEALTH WORKERS	63.5	16.7%	16.7% of 63.5	10.6
5	COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING PLANS TO ADDRESS GAPS, AND ADHERING TO GLOBAL NORMS	77.0	15.8%	15.8% of 77.0	12.2
6	OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS	79.8	12.8%	12.8% of 79.8	10.2

Model Weights

The weights assigned to each category and indicator can be changed in the Global Health Security Index data model to reflect different assumptions about their relative importance.

Four sets of weights are provided in the model as follows:

- **Expert panel weights:** The first option, which is used for the default weights, uses expert judgment to assign weights to indicators and brings a real-world perspective to an index, which is important if an index is to guide policy actions. The weights were defined by the Global Health Security Index International Panel of Experts. They are based on input from and discussions among the International Panel of Experts at the April 2019 meeting on the relative value of each category and indicator.

- **Neutral weights:** The second weighting option, neutral weights, assumes equal importance of all categories and evenly distributes weights on that basis. This approach has the advantage of simplicity and does not involve subjective judgment. A disadvantage of this option is that it assumes that all categories are equally significant.

- **Equal weights:** The third option, equal weights, assigns an identical weight to each indicator, rather than to each category. As with neutral weights, the advantage of using equal weights is removing subjective judgment. A disadvantage of this option is that it assumes that all indicators are equally significant.

- **Principal Components Analysis:** A fourth weighting option is principal components analysis (PCA). PCA weights are derived through a mathematical process that accounts for the covariance between indicators and the importance of a particular element in maximizing the variation in the index scores. It aims to minimize redundancy between variables and to maximize the variance within the Index, but it does not consider indicators' perceived importance. See page 80 for additional information on the PCA methodology.

Table A5 shows the Global Health Security Index default weights by category as assigned by the International Panel of Experts.

TABLE A5. WEIGHT PROFILE BY CATEGORY AS DEFINED BY THE INTERNATIONAL PANEL OF EXPERTS

WEIGHT PROFILE DEFINED BY THE INTERNATIONAL PANEL OF EXPERTS		
	CATEGORY	WEIGHT
1	PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS	16.3%
2	EARLY DETECTION AND REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN	19.2%
3	RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC	19.2%
4	SUFFICIENT AND ROBUST HEALTH SYSTEM TO TREAT THE SICK AND PROTECT HEALTH WORKERS	16.7%
5	COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING PLANS TO ADDRESS GAPS, AND ADHERING TO GLOBAL NORMS	15.8%
6	OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS	12.8%

Table A6 shows the Global Health Security Index default weights by indicator as assigned by the International Panel of Experts.

TABLE A6. WEIGHT PROFILE BY INDICATOR AS DEFINED BY THE INTERNATIONAL PANEL OF EXPERTS

CATEGORY	WEIGHT
1 PREVENTING THE EMERGENCE OR RELEASE OF PATHOGENS	
1.1 Antimicrobial resistance (AMR)	16.1%
1.2 Zoonotic disease	17.8%
1.3 Biosecurity	16.1%
1.4 Biosafety	16.1%
1.5 Dual-use research and culture of responsible science	14.4%
1.6 Immunization	19.5%
2 EARLY DETECTION AND REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN	
2.1 Laboratory systems	26.1%
2.2 Real-time surveillance and reporting	26.9%
2.3 Epidemiology workforce	25.4%
2.4 Data integration between human, animal, and environmental health sectors	21.6%
3 RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC	
3.1 Emergency preparedness and response planning	15.7%
3.2 Exercising response plans	13.7%
3.3 Emergency response operation	16.8%
3.4 Linking public health and security authorities	12.7%
3.5 Risk communication	17.8%
3.6 Access to communications infrastructure	12.2%
3.7 Trade and travel restrictions	11.2%

CATEGORY	WEIGHT
4 SUFFICIENT AND ROBUST HEALTH SYSTEM TO TREAT THE SICK AND PROTECT HEALTH WORKERS	
4.1 Health capacity in clinics, hospitals, and community care centers	17.3%
4.2 Medical countermeasures and personnel deployment	16.8%
4.3 Healthcare access	18.4%
4.4 Communications with healthcare workers during a public health emergency	16.8%
4.5 Infection control practices and availability of equipment	18.4%
4.6 Capacity to test and approve new medical countermeasures	12.4%
5 COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING PLANS TO ADDRESS GAPS, AND ADHERING TO GLOBAL NORMS	
5.1 International Health Regulations (IHR) reporting compliance and disaster risk reduction	17.4%
5.2 Cross-border agreements on public health and animal health emergency response	15.7%
5.3 International commitments	13.5%
5.4 Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) Pathway	16.3%
5.5 Financing	19.7%
5.6 Commitment to sharing genetic and biological data and specimens	17.4%
6 OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS	
6.1 Political and security risk	22.2%
6.2 Socio-economic resilience	19.0%
6.3 Infrastructure adequacy	20.3%
6.4 Environmental risks	17.6%
6.5 Public health vulnerabilities	20.9%

Principal Components Analysis

The goal of principal components analysis (PCA) is to define quantitatively a weighting scheme for the indicators that are used to create a composite index or ranking. PCA is a method for removing redundant information shared across indicators by specifying a weighting that explains the most variance in the data.

The PCA weights featured within the 2019 Global Health Security Index model have been provided for those experts who may wish to explore the behavior of the model in more depth. However, because the weights do not consider the intrinsic significance of an indicator in the context of the 2019 Global Health Security Index, they should not be considered (a) as an alternative to the default weights or (b) as a means of understanding country rankings and scores.

PCA assigns each element in an index a weight that takes into account the covariance between indicators and the importance of a particular element in maximizing the variation in the Global Health Security Index outcome (health security conditions). It aims to minimize redundancy between variables and to maximize the variance with respect to the outcome. The weight is calculated by taking the principal component (eigenvector) associated with the highest explained variance (eigenvalue).

This approach is a way of decomposing the data into independent components ordered by informational content and, according to Ram (1982),³⁷ is a natural choice for an index weighting. Important assumptions for valid PCA are (a) that variance is meaningful and not the result of data with large measurement error and (b) that the dynamics of interest (health security conditions) are along the direction with the largest variance.

A one-stage PCA analysis solves for the weights that maximize the variance across all the indicators, irrespective of category membership:

1. Perform PCA analysis on all the indicators at once, ignoring category membership.
2. Use the principal component associated with the highest eigenvalue.
3. Set negative components to zero (if positive weights are required).
4. Normalize within indicator weights so that the sum of the weights is 1.
5. Normalize the category weights so that the sum across categories is 1.
 - Use the sum of the non-normalized subindicator weights and assign this as the indicator weight for that category.
 - Then renormalize top-level indicator weights across indicators so that those also sum to 1.

Variation within indicator weights is a sign that redundancy is occurring in the elements or that some elements are not as relevant in explaining the variation in the overall index once all the other variables are considered. Finding equal weights across indicators is a sign of very little redundancy across subgroups and similar relevance in explaining variation in the Global Health Security Index, which suggests that the Index was appropriately divided into subgroups.

³⁷ Rati Ram, "Composite Indices of Physical Quality of Life, Basic Needs Fulfillment, and Income: A 'Principal Component' Representation," *Journal of Development Economics* 11, no. 2 (October 1982): 227–47.

Model Correlations

Correlating the 2019 Global Health Security Index to other data sets reveals some potentially interesting associations. Correlations measure the strength of a relationship between two variables. Scatter plots, which can be found on the “Correlations” tab in the Index model, show the correlations between the 2019 Index and a number of variables. Correlation analysis for two of those variables is as follows:

- **Online Service Index:** The 2018 Online Service Index (OSI) is a subset of the United Nations’ annual E-Government Survey assessing a government’s capability and willingness to provide services and communicate with its citizens electronically. The OSI is scored on the basis of 140 binary questions. The OSI has the strongest correlation with the overall score of any of the background indicators (.78), suggesting a relationship between a country’s ability to provide online services and its performance on the Global Health Security Index. This result likely is a reflection of the fact that the Global Health Security Index is scored on the basis of publicly available information; the more committed a country government is to providing information online, the more likely evidence of policies and actions are captured in the index.
- **Human Capital Index:** The World Bank launched the Human Capital Index (HCI), and it was designed to assess the future potential human capital of children born today. The HCI has three components: child survival, expected years of learning-adjusted schooling, and health. The HCI also has a high correlation with the Global Health Security Index (.77). This correlation highlights the relationship between the factors that influence future human capital development and the various dimensions of global health security capacity, such as health systems, human resources, and the risk environment.

- **GDP and GDP per capita:** Two background indicators that do not have a strong positive correlation with the Global Health Security Index are GDP (.37) and GDP per capita (.44). Although this characteristic does indicate a somewhat positive relationship between scores, the low correlation indicates that health security capacity may not be determined entirely by country wealth.

RESEARCH BEHIND SELECTED INDICATORS

This section focuses on the research behind selected indicators, and it includes an explanation for the scoring framework behind several of the more complex variables created by The Economist Intelligence Unit. Scoring criteria for all of the indicators are included in the section titled “Sources and Definitions of Indicators.”

Approach

The Economist Intelligence Unit employed country experts and regional specialists with a wide variety of necessary linguistic skills to undertake the research from its global network of more than 900 analysts and researchers. Researchers were asked to gather data from primary legal texts; government and academic publications; and websites of government authorities, international organizations, and non-governmental organizations. Researchers also reviewed local and international news and media reports. The research process proved challenging, both because of the difficulty in sourcing data and official information related to health security and, in some cases, because of a lack of publicly available information.

Challenging Indicators

2.1.1a Laboratory testing for detection of priority diseases

Does the national laboratory system have the capacity to conduct diagnostic tests for at least five of the 10 WHO-defined core tests?

This question assesses a country's capacity to conduct the 10 core tests. Per the Joint External Evaluation Tool (updated in January 2018), the 10 core tests consist of "six testing methods selected according to the IHR's immediately notifiable list and the WHO top 10 causes of death in low-income countries" and four country-defined tests.³⁸

These tests are included as indications of the capacity of a country's laboratory system to conduct complex tests and are a common, accepted global measure that has been integrated within the Joint External Evaluation as a metric for evaluation.

The answers to this question highlight the difference between examining publicly available information versus capturing the "known" capacity of each country. The purpose of capturing publicly stated testing capabilities is the critical need for researchers, laboratory workers, and other health workers within the country to understand which tests the national laboratory system can perform. As a result, some countries in this Index that likely are able to conduct at least six of the 10 core tests are scored as a "No," given that the countries do not make this information publicly available.

This question captures an important dimension of laboratory capacity, but it remains a difficult one to capture. The Joint External Evaluation reports include assessments on whether a country can conduct at least five of the 10 core tests, but they may not indicate how many tests or which tests can be performed by which laboratories. Furthermore, both countries that publish information on laboratory capacity on their national websites and those that have published information via a Joint External Evaluation report rarely identify the four country-defined tests. As a result, scoring is often based on whether the countries are able to conduct five of the six centrally defined tests, rather than if they can conduct five of the 10 overall core tests.

2.2.2b Interoperable, interconnected, electronic real-time reporting systems

Does the electronic reporting surveillance system collect ongoing or real-time laboratory data?

This question assesses whether the electronic surveillance system also collects laboratory data in real time. Real-time electronic surveillance systems serve to more rapidly identify potential public health emergencies when and where they emerge. Although "real time" is recognized as a standard, there is no easy definition for what constitutes real time for an electronic surveillance system (e.g., if updates need to be made on an hourly, daily, or weekly basis). As a result, the research team needed to determine what could be assessed as ongoing or "real time" and which systems did not demonstrate this capacity.

³⁸ The six commonly defined core tests are polymerase chain reaction testing for influenza virus, virus culture for poliovirus, serology for human immunodeficiency virus (HIV), microscopy for *Mycobacterium tuberculosis*, rapid diagnostic testing for *Plasmodium* spp., and bacterial culture for *Salmonella enteritidis* serotype typhi. The remaining four tests "should be selected by the country on the basis of major national public health concerns." World Health Organization (WHO), Joint External Evaluation Tool, Second ed. (Geneva: WHO; 2018), 49, <https://extranet.who.int/sph/sites/default/files/document-library/document/9789241550222-eng.pdf>.

3.3.1 Emergency response operation

Is there public evidence to show that the Emergency Operations Center (EOC) has conducted, within the last year, a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario?

Activation of response within 120 minutes of the identification of a public health emergency is considered a benchmark for measuring the capacity and agility of a country's emergency operations system. However, few countries share information publicly on whether they can achieve this metric.

Most countries for which there is available information on this capability share this only within the text of a Joint External Evaluation report. However, country capacities can change over time, and the findings of a Joint External Evaluation assessment in previous years may not reflect current capacity. For example, a country that indicated it can activate response within two hours in a report published in 2016 may no longer be able to meet this standard. This question, therefore, looks for public evidence demonstrating this capacity in the past year.

Challenging Countries

Although each country has unique research challenges, certain countries and contexts presented particular research challenges. Venezuela and Syria were particular cases, because these countries' political and health systems are in turmoil owing to ongoing conflict. The United Kingdom was another country that presented as a challenge, given its pending transition out of the European Union (at the time of research). Other countries were also challenging because of a lack of publicly available information, either due to security concerns (e.g., Israel) or due to a lack of resources or investment in e-government (e.g., small and low-income countries).

Sources and Definitions of Indicators

Table A7 provides the sources and definitions of indicators of the 2019 Global Health Security Index.

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 1: PREVENTION OF THE EMERGENCE OR RELEASE OF PATHOGENS		
1.1 Antimicrobial resistance (AMR)		
1.1.1 AMR surveillance, detection, and reporting		
1.1.1a	World Health Organization (WHO) Library of national action plans on AMR; completed Joint External Evaluation (JEE) assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a national AMR plan for the surveillance, detection, and reporting of priority AMR pathogens?</p> <p>Yes, there is evidence of an AMR plan, and it covers surveillance, detection, and reporting = 2</p> <p>Yes, there is evidence of an AMR plan, but there is insufficient evidence that it covers surveillance, detection, and reporting = 1</p> <p>No evidence of an AMR plan = 0</p>
1.1.1b	WHO Library of national action plans on AMR; completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a national laboratory/laboratory system which tests for priority AMR pathogens?</p> <p>All 7 + 1 priority pathogens = 2 Yes, but not all 7+1 pathogens = 1 No = 0</p>
1.1.1c	WHO Library of national action plans on AMR; completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the government conduct environmental detection or surveillance activities (e.g., in soil, waterways) for antimicrobial residues or AMR organisms?</p> <p>Yes = 1 No = 0</p>
1.1.2 Antimicrobial control		
1.1.2a	WHO Library of national action plans on AMR; completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there national legislation or regulation in place requiring prescriptions for antibiotic use for humans?</p> <p>Yes = 1 No = 0</p>
1.1.2b	WHO Library of national action plans on AMR; completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there national legislation or regulation in place requiring prescriptions for antibiotic use for animals?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
1.2 Zoonotic disease		
1.2.1 National planning for zoonotic diseases/pathogens		
1.2.1a	Completed JEE assessments; completed Performance of Veterinary Services (PVS) assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there national legislation, plans, or equivalent strategy documents on zoonotic disease? Yes = 1 No = 0
1.2.1b	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there national legislation, plans, or guidelines that account for the surveillance and control of multiple zoonotic pathogens of public health concern? Yes = 1 No = 0
1.2.1c	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries? Yes = 1 No = 0
1.2.2 Surveillance systems for zoonotic diseases/pathogens		
1.2.2a	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country have a national mechanism (either voluntary or mandatory) for owners of livestock to conduct and report on disease surveillance to a central government agency? Yes = 1 No = 0
1.2.2b	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there legislation and/or regulations that safeguard the confidentiality of information generated through surveillance activities for animals (for owners)? Yes = 1 No = 0
1.2.2c	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country conduct surveillance of zoonotic disease in wildlife (e.g., wild animals, insects, other disease vectors)? Yes = 1 No = 0

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
1.2.3 International reporting of animal disease outbreaks		
1.2.3a	World Organisation for Animal Health (OIE) World Animal Health Information System (WAHIS)	Has the country submitted a report to OIE on the incidence of human cases of zoonotic disease for the last calendar year? Yes = 1 No = 0
1.2.4 Animal health workforce		
1.2.4a	OIE WAHIS	Number of veterinarians per 100,000 people
1.2.4b	OIE WAHIS	Number of veterinary para-professionals per 100,000 people
1.2.5 Private sector and zoonotic disease		
1.2.5a	Completed JEE assessments; completed PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the national plan on zoonotic disease or other legislation, regulations, or plans include mechanisms for working with the private sector in controlling or responding to zoonoses? Yes = 1 No = 0
1.3 Biosecurity		
1.3.1 Whole-of-government biosecurity systems		
1.3.1a	Completed JEE assessments; Verification Research, Training and Information Centre (VERTIC) database; Biological Weapons Convention (BWC) Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country have in place a record, updated within the past five years, of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities? Yes = 1 No = 0
1.3.1b	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country have in place legislation and/or regulations related to biosecurity which address requirements such as physical containment, operation practices, failure reporting systems, and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed? Yes = 1 No = 0

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
1.3.1c	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations? Yes = 1 No = 0
1.3.1d	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there public evidence that shows that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities? Yes = 1 No = 0
1.3.1e	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax and/or Ebola, which would preclude culturing a live pathogen? Yes = 1 No = 0
1.3.2 Biosecurity training and practices		
1.3.2a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country require biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential? Yes = 1 No = 0
1.3.3 Personnel vetting: Regulating access to sensitive locations		
1.3.3a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Do regulations or licensing conditions specify that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to the following checks: drug testing, background checks, and psychological or mental fitness checks? Personnel are subject to all three of these checks = 3 Personnel are subject to two of these checks = 2 Personnel are subject to one of these checks = 1 Personnel are not subject to any of these checks = 0

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS *continued*

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
1.3.4 Transportation security		
1.3.4a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country have publicly available information on national regulations on the safe and secure transport of infectious substances (specifically including Categories A and B ³⁹)? Yes = 1 No = 0
1.3.5 Cross-border transfer and end-user screening		
1.3.5a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there legislation and/or regulations in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential? Yes = 1 No = 0
1.4 Biosafety		
1.4.1 Whole-of-government biosafety systems		
1.4.1a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country have in place national biosafety legislation and/or regulations? Yes = 1 No = 0
1.4.1b	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there an established agency responsible for the enforcement of biosafety legislation and regulations? Yes = 1 No = 0
1.4.2 Biosafety training and practices		
1.4.2a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country require biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential? Yes = 1 No = 0

³⁹ The World Health Organization defines a Category A substance as “an infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.” Category B substances are all other infectious substances which do not meet the criteria of Category A.

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
1.5 Dual-use research and culture of responsible science		
1.5.1 Oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research		
1.5.1a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there publicly available evidence that the country has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?</p> <p>Yes = 1 No = 0</p>
1.5.1b	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there legislation and/or regulation requiring oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?</p> <p>Yes = 1 No = 0</p>
1.5.1c	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?</p> <p>Yes = 1 No = 0</p>
1.5.2 Screening requirements for providers of genetic material		
1.5.2a	Completed JEE assessments; VERTIC database; BWC Confidence-Building Measures; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there legislation and/or regulation requiring the screening of synthesized DNA (deoxyribonucleic acid) against lists of known pathogens and toxins before it is sold?</p> <p>Yes = 1 No = 0</p>
1.6 Immunization		
1.6.1 Vaccination rates		
1.6.1a	WHO	Immunization rate (measles/MCV1)
1.6.1b	OIE WAHIS	<p>Are official foot-and-mouth disease (FMD) vaccination figures for livestock publicly available through the OIE database?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 2: EARLY DETECTION AND REPORTING FOR EPIDEMICS OF POTENTIAL INTERNATIONAL CONCERN		
2.1 Laboratory systems		
2.1.1 Laboratory capacity for detecting of priority diseases		
2.1.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the national laboratory system have the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests? Evidence they can conduct 5 of the 10 core tests and these tests are named = 2 Evidence they can conduct 5 of the 10 core tests and the tests are not named = 1 No evidence they can conduct 5 of the 10 core tests = 0
2.1.1b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory needs (such as equipment, reagents, and media)? Yes = 1 No = 0
2.1.2 Specimen referral and transport system		
2.1.2a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country participate in a regional or international laboratory network? Yes = 1 No = 0
2.1.2b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there a nationwide specimen transport system? ⁴⁰ Yes = 1 No = 0
2.1.3 Laboratory quality systems		
2.1.3a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there a national laboratory that serves as a reference facility which is accredited (e.g., International Organization for Standardization [ISO] 15189:2003, U.S. Clinical Laboratory Improvement Amendments [CLIA])? Yes = 1 No = 0

⁴⁰ "Nationwide" is defined as evidence of at least 80% of districts covered by specimen transport systems.

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
2.1.3b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a national laboratory that serves as a reference facility which is subject to external quality assurance review?</p> <p>Yes = 1 No = 0</p>
2.2 Real-time surveillance and reporting		
2.2.1 Indicator and event-based surveillance and reporting systems		
2.2.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that the country is conducting ongoing event-based surveillance and analysis for infectious disease?</p> <p>Yes, there is evidence of ongoing event-based surveillance and evidence that the data is being analyzed on a daily basis = 2 Yes, there is evidence of ongoing event-based surveillance, but no evidence that the data are being analyzed on a daily basis = 1 No = 0</p>
2.2.1b	WHO Disease Outbreak News; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there publicly available evidence that the country reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years?</p> <p>Yes = 1 No = 0</p>
2.2.2 Interoperable, interconnected, electronic real-time reporting systems		
2.2.2a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the government operate an electronic reporting surveillance system at both the national and the sub-national level?</p> <p>Yes = 1 No = 0</p>
2.2.2b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the electronic reporting surveillance system collect ongoing or real-time laboratory data?</p> <p>Yes = 1 No = 0</p>
2.2.2c	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Has the government made a commitment via public statements, legislation, and/or a cooperative agreement to share surveillance data during a public health emergency with other countries in the region?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS *continued*

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
2.2.3 Transparency of surveillance data		
2.2.3a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the country make de-identified health surveillance data on disease outbreaks publicly available via reports (or other format) on government websites (such as the Ministry of Health, Ministry of Agriculture, or similar)? Yes = 1 No = 0
2.2.4 Ethical considerations during surveillance		
2.2.4a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there legislation and/or regulations that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities? Yes = 1 No = 0
2.2.4b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there legislation and/or regulations safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks (e.g., ransomware)? Yes = 1 No = 0
2.2.5 Coverage and use of electronic health records		
2.2.5a	WHO eHealth Atlas; Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Are electronic health records commonly in use? ⁴¹ Electronic health records are commonly in use = 2 Electronic health records are not commonly in use, but there is evidence they are used = 1 No evidence electronic health records are in use = 0
2.2.5b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the national public health system have access to electronic health records of individuals in their country? Yes = 1 No = 0
2.2.5c	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Are there data standards to ensure data is comparable (e.g., ISO standards)? Yes = 1 No = 0

⁴¹ "Commonly in use" is defined as being used in 75% or more of the country's health facilities.

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
2.3 Epidemiology workforce	2.3.1 Applied epidemiology training program, such as the field epidemiology training program, for public health professionals and veterinarians (e.g., Field Epidemiology Training Program [FETP] and Field Epidemiology Training Program for Veterinarians [FETPV])	Does the country meet one of the following criteria? <ul style="list-style-type: none"> • Applied epidemiology training program (such as FETP) is available in country • Resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs (such as FETP) Needs to meet at least one of the criteria to be scored a 1 on this measure. Yes for both = 1 Yes for one = 1 No for both = 0
2.3.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Are the available field epidemiology training programs explicitly inclusive of animal health professionals or is there a specific animal health field epidemiology training program offered (such as FETPV)? Yes = 1 No = 0
2.3.1b	Completed JEE assessments; OIE PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there public evidence that the country has at least 1 trained field epidemiologist per 200,000 people? Yes = 1 No = 0
2.3.2 Epidemiology workforce capacity	2.3.2a Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Is there evidence of established mechanisms at the relevant ministries responsible for animal, human, and wildlife surveillance to share data (e.g., through mosquito surveillance, brucellosis surveillance)? Yes = 1 No = 0
2.4 Data integration between human, animal, and environmental health sectors	2.4.1 Data integration between human, animal, and environmental health sectors	
2.4.1a	Completed JEE assessments; OIE PVS assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS *continued*

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 3: RAPID RESPONSE TO AND MITIGATION OF THE SPREAD OF AN EPIDEMIC		
3.1 Emergency preparedness and response planning		
3.1.1 National public health emergency preparedness and response plan		
3.1.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have a national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential?</p> <p>Evidence that there are plans in place, and the plans are publicly available = 2 Evidence that there are plans in place, but the plans are not publicly available = 1 No evidence that such a plan or plans are in place = 0</p>
3.1.1b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>If this plan is in place, has it been updated in the last 3 years?</p> <p>Yes = 1 No/no plan in place = 0</p>
3.1.1c	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>If this plan is in place, does it include considerations for pediatric and/or other vulnerable populations?</p> <p>Yes = 1 No/no plan in place = 0</p>
3.1.1d	WHO Strategic Partnership for IHR and Health Security (SPH)	<p>Does the country have a publicly available plan in place specifically for pandemic influenza preparedness that has been updated since 2009?</p> <p>Yes = 1 No = 0</p>
3.1.2 Private sector involvement in preparedness and response		
3.1.2a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have a specific mechanism(s) for engaging with the private sector to assist with outbreak emergency preparedness and response?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
3.2 Exercising response plans		
3.2.1 International Health Regulations (IHR) simulation exercises		
3.2.1a	WHO Strategic Partnership for IHR and Health Security (SPH)	<p>Has the country completed a biological threat-focused IHR exercise with the WHO in the past year (excluding chemical and radiological exercises)?</p> <p>Yes = 1 No = 0</p>
3.2.1b	WHO Strategic Partnership for IHR and Health Security (SPH); The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that the country in the past year has undergone an exercise to identify a list of gaps and best practices through either an after action review (post emergency response) or a biological threat-focused IHR exercise with the WHO?</p> <p>Yes = 1 No = 0</p>
3.3 Emergency response operation		
3.3.1 Emergency response operation		
3.3.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have in place an Emergency Operations Center (EOC)?</p> <p>Yes = 1 No = 0</p>
3.3.1b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is the Emergency Operations Center (EOC) required to conduct a drill at least once per year, or is there evidence that they conduct a drill at least once per year?</p> <p>Yes = 1 No = 0</p>
3.3.1c	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there public evidence to show that the Emergency Operations Center (EOC) has conducted within the last year a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
	3.4 Linking public health and security authorities	
3.4.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country meet one of the following criteria?</p> <ul style="list-style-type: none"> • Is there public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack)? • Are there publicly available standard operating procedures, guidelines, memorandums of understanding (MOUs), or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e., bioterrorism attack)? <p>Needs to meet at least one of the criteria to be scored a 1 on this measure.</p> <p>Yes for both = 1 Yes for one = 1 No for both = 0</p>
	3.5 Risk communication	
3.5.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have in place, either in the national public health emergency response plan or in other legislation, regulation, or strategy documents, a section detailing a risk communication plan that is specifically intended for use during a public health emergency?</p> <p>Yes = 1 No = 0</p>
3.5.2a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that the government utilizes media platforms (e.g., social media, website updates) to inform the public about public health emergencies?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
3.5.2b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	Does the risk communication plan (or other legislation, regulation, or strategy document used to guide national public health response) outline how messages will reach populations and sectors with different communications needs (e.g., different languages, location within the country, media reach)? Yes = 1 No = 0
3.6 Access to communications infrastructure		
3.6.1 Internet users		
3.6.1a	International Telecommunication Union (ITU)	Percentage of households with Internet
3.6.2 Mobile subscribers		
3.6.2a	ITU	Mobile-cellular telephone subscriptions per 100 inhabitants
3.6.3 Female access to a mobile phone		
3.6.3a	Gallup; The Economist Intelligence Unit	Percentage point gap between males and females whose home has access to a mobile phone
3.6.4 Female access to the Internet		
3.6.4a	Gallup; The Economist Intelligence Unit	Percentage point gap between males and females whose home has access to the Internet
3.7 Trade and travel restrictions		
3.7.1 Government restriction of trade and travel		
3.7.1a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	In the past year, has the country issued a restriction on either the movement of people or the export/import of goods from another country, stating that it was due to the risk posed by an infectious disease outbreak? Yes = 0 No = 1

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
3.7.1b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	If there were restrictions, were these considered in accord with the WHO International Health Regulations/OIE regulations and recommendations? Yes/no restrictions = 1 No = 0
3.7.2 Non-government restriction of trade and travel		
3.7.2a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	In the past year, has an airline headquartered in the country issued a restriction on either the movement of people or the export/import of goods from another country, stating that it was due to the risk posed by an infectious disease outbreak? Yes = 0 No = 1
3.7.2b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	If there were restrictions, were these considered in accord with the WHO International Health Regulations/OIE regulations and recommendations? Yes/no restrictions = 1 No = 0

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 4: SUFFICIENT AND ROBUST HEALTH SYSTEM TO TREAT THE SICK AND PROTECT HEALTH WORKERS		
4.1 Health capacity in clinics, hospitals, and community care centers		
4.1.1 Available human resources for the broader healthcare system		
4.1.1a	WHO; national sources.	Doctors per 100,000 people
4.1.1b	WHO; national sources.	Nurses and midwives per 100,000 people
4.1.1c	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have a health workforce strategy in place (which has been updated in the past five years) to identify fields where there is an insufficient workforce and strategies to address these shortcomings?</p> <p>Yes = 1 No = 0</p>
4.1.2 Facilities capacity		
4.1.2a	WHO/World Bank; national sources.	Hospital beds per 100,000 people
4.1.2b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation room/unit located within the country?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
		4.2 Medical countermeasures and personnel deployment
		4.2.1 Capacity to acquire medical countermeasures
4.2.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country meet one of the following criteria:</p> <ul style="list-style-type: none"> • Does the country maintain a stockpile of medical countermeasures (MCM) for national use during a public health emergency (i.e., vaccines, therapeutics, and diagnostics)? • Does the country have an agreement in place with manufacturers or distributors to procure medical countermeasures (MCM) for national use during a public health emergency (i.e., vaccines, therapeutics, and diagnostics)? <p>Needs to meet at least one of the criteria to be scored a 1 on this measure.</p> <p>Yes for both = 1 Yes for one = 1 No for both = 0</p>
		4.2.2 System for dispensing medical countermeasures (MCM) during a public health emergency
4.2.2a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have a plan, program, or guidelines in place for dispensing medical countermeasures (MCM) for national use during a public health emergency (i.e., antibiotics, vaccines, therapeutics and diagnostics)?</p> <p>Yes = 1 No = 0</p>
		4.2.3 System for receiving foreign health personnel during a public health emergency
4.2.3a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a public plan in place to receive health personnel from other countries to respond to a public health emergency?</p> <p>Yes = 1 No = 0</p>
		4.3 Healthcare access
		4.3.1 Access to healthcare
4.3.1a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Has the country enacted legislation mandating universal healthcare coverage?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
4.3.1b	WHO/World Bank/United Nations Children's Fund (UNICEF)	Access to skilled birth attendants (% of population)
4.3.1c	WHO Global Health Expenditure database	Out-of-pocket health expenditures per capita, purchasing power parity (PPP; current international \$)
4.3.2 Healthcare worker access to healthcare		
4.3.2a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Has the government issued legislation, a policy, or a public statement committing to provide prioritized healthcare services to healthcare workers who become sick as a result of responding to a public health emergency?</p> <p>Yes = 1 No = 0</p>
4.4 Communications with healthcare workers during a public health emergency		
4.4.1 Communication with healthcare workers		
4.4.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a system in place for public health officials and healthcare workers to communicate during a public health emergency?</p> <p>Yes = 1 No = 0</p>
4.4.1b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the system for public health officials and healthcare workers to communicate during an emergency encompass healthcare workers in both the public and private sector?</p> <p>Yes = 1 No = 0</p>
4.5 Infection control practices and availability of equipment		
4.5.1 Infection control equipment availability		
4.5.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Has the country published a publicly available plan, strategy, or similar document to address personal protective equipment (PPE) supply issues for both routine national use and during a public health emergency?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
4.5.2 Healthcare associated infection (HCAI) monitoring		
4.5.2a	WHO Library of national action plans on AMR; Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that the national public health system is monitoring for and tracking the number of healthcare associated infections (HCAI) that take place in healthcare facilities?</p> <p>Yes = 1 No = 0</p>
4.6 Capacity to test and approve new medical countermeasures		
4.6.1 Regulatory process for conducting clinical trials of unregistered interventions		
4.6.1a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a national requirement for ethical review (e.g., from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial?</p> <p>Yes = 1 No = 0</p>
4.6.1b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing epidemics?</p> <p>Yes = 1 No = 0</p>
4.6.2 Regulatory process for approving medical countermeasures		
4.6.2a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a government agency responsible for approving new medical countermeasures (MCM) for humans?</p> <p>Yes = 1 No = 0</p>
4.6.2b	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there an expedited process for approving medical countermeasures (MCM) for human use during public health emergencies?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 5: COMMITMENTS TO IMPROVING NATIONAL CAPACITY, FINANCING PLANS TO ADDRESS GAPS, AND ADHERING TO GLOBAL NORMS		
5.1 International Health Regulations (IHR) reporting compliance and disaster risk reduction		
5.1.1 Official IHR reporting		
5.1.1a	WHO	<p>Has the country submitted IHR reports to the WHO for the previous calendar year?</p> <p>Yes = 1 No = 0</p>
5.1.2 Integration of health into disaster risk reduction		
5.1.2a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Are epidemics and pandemics integrated into the national risk reduction strategy or is there a standalone national disaster risk reduction strategy for epidemics and pandemics?</p> <p>Yes = 1 No = 0</p>
5.2 Cross-border agreements on public health and animal health emergency response		
5.2.1 Cross-border agreements		
5.2.1a	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies?</p> <p>Yes = 1 No = 0</p>
5.2.1b	Completed JEE assessments; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to animal health emergencies?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS *continued*

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
		5.3 International commitments
		5.3.1 Participation in international agreements
5.3.1a	Biological Weapons Convention	<p>Does the country have signatory and ratification (or same legal effect) status to the Biological Weapons Convention?</p> <p>Signed and ratified (or action having the same legal effect) = 2 Signed = 1 Non-compliant or not a member = 0</p>
5.3.1b	Biological Weapons Convention	<p>Has the country submitted confidence building measures for the Biological Weapons Convention in the past three years?</p> <p>Yes = 1 No = 0</p>
5.3.1c	Biological Weapons Convention	<p>Has the state provided the required United Nations Security Council Resolution (UNSCR) 1540 report to the Security Council Committee established pursuant to resolution 1540 (1540 Committee)?</p> <p>Yes = 1 No = 0</p>
5.3.1d	Biological Weapons Convention	<p>Extent of United Nations Security Council Resolution (UNSCR) 1540 implementation related to legal frameworks and enforcement for countering biological weapons:</p> <p>Very good (100+ points) = 4 Good (75–99 points) = 3 Moderate (50–74 points) = 2 Weak (25–49 points) = 1 Very weak (0–24 points) or no matrix exists/ country is not party to the BWC = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
	5.3.2 Voluntary memberships	
5.3.2a	Global Health Security Agenda; JEE Alliance; Global Partnership Against the Spread of Weapons and Materials of Mass Destruction; Australia Group; Proliferation Security Initiative (PSI)	<p>Does the country meet at least 2 of the following criteria?</p> <ul style="list-style-type: none"> • Membership in Global Health Security Agenda (GHSA) • Membership in the Alliance for Country Assessments for Global Health Security and IHR Implementation (JEE Alliance) • Membership in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP) • Membership in the Australia Group (AG) • Membership in the Proliferation Security Initiative (PSI) <p>Needs to meet at least two of the criteria to be scored a 1 on this measure.</p> <p>Yes for five = 1 Yes for four = 1 Yes for three = 1 Yes for two = 1 Yes for one = 0 No for all = 0</p>
5.4 Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) Pathway		
5.4.1 Completion and publication of a Joint External Evaluation (JEE) assessment and gap analysis		
5.4.1a	WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda	Has the country completed a Joint External Evaluation (JEE) or precursor external evaluation (e.g., GHSA pilot external assessment) and published a full public report in the last five years?
5.4.1b	WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda	Has the country completed and published, within the last five years, either a National Action Plan for Health Security (NAPHS) to address gaps identified through the Joint External Evaluation (JEE) assessment or a national GHSA roadmap that sets milestones for achieving each of the GHSA targets?
		<p>Yes = 1 No = 0</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
5.4.2 Completion and publication of a Performance of Veterinary Services (PVS) assessment and gap analysis		
5.4.2a	OIE PVS assessments	<p>Has the country completed and published a Performance of Veterinary Services (PVS) assessment in the last five years?</p> <p>Yes = 1 No = 0</p>
5.4.2b	OIE PVS assessments	<p>Has the country completed and published a Performance of Veterinary Services (PVS) gap analysis in the last five years?</p> <p>Yes = 1 No = 0</p>
5.5 Financing		
5.5.1 Financing under Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) reports and gap analyses		
5.5.1a	WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda	<p>Does the Joint External Evaluation (JEE) report, National Action Plan for Health Security (NAPHS), and/or national GHSA roadmap allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?</p> <p>Yes = 1 No/country has not conducted a JEE = 0</p>
5.5.1b	OIE PVS assessments	<p>Does the Performance of Veterinary Services (PVS) gap analysis and/or PVS assessment allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?</p> <p>Yes = 1 No/country has not conducted a PVS = 0</p>
5.5.2 Financing for emergency response		
5.5.2a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a publicly identified special emergency public financing mechanism and funds which the country can access in the face of a public health emergency (such as through a dedicated national reserve fund, an established agreement with the World Bank pandemic financing facility/other multilateral emergency funding mechanism, or other pathway identified through a public health or state of emergency act)?</p> <p>Yes = 1 No = 0</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
5.5.3 Accountability for commitments made at the international stage for addressing epidemic threats		
5.5.3a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:</p> <ul style="list-style-type: none"> • Support other countries to improve capacity to address epidemic threats by providing financing or support? • Improve the country's domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity? <p>Needs to meet at least one of the criteria to be scored a 1 on this measure.</p> <p>Yes for both = 1 Yes for one = 1 No for both = 0</p>
5.5.3b	Georgetown Infectious Disease Atlas (GIDA); The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there evidence that the country has, in the past three years, either invested finances (from donors or national budget) or provided technical support either to</p> <ul style="list-style-type: none"> • Support other countries to improve capacity to address epidemic threats? • Improve the country's domestic capacity to address epidemic threats? <p>Needs to meet at least one of the criteria to be scored a 1 on this measure.</p> <p>Yes for both = 1 Yes for one = 1 No for both = 0</p>
5.6 Commitment to sharing of genetic and biological data and specimens		
5.6.1 Commitment to sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) in both emergency and nonemergency research		
5.6.1a	The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there a publicly available plan or policy for sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) along with the associated epidemiological data with international organizations and/or other countries that goes beyond influenza?</p> <p>Yes = 1 No = 0</p>

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS continued

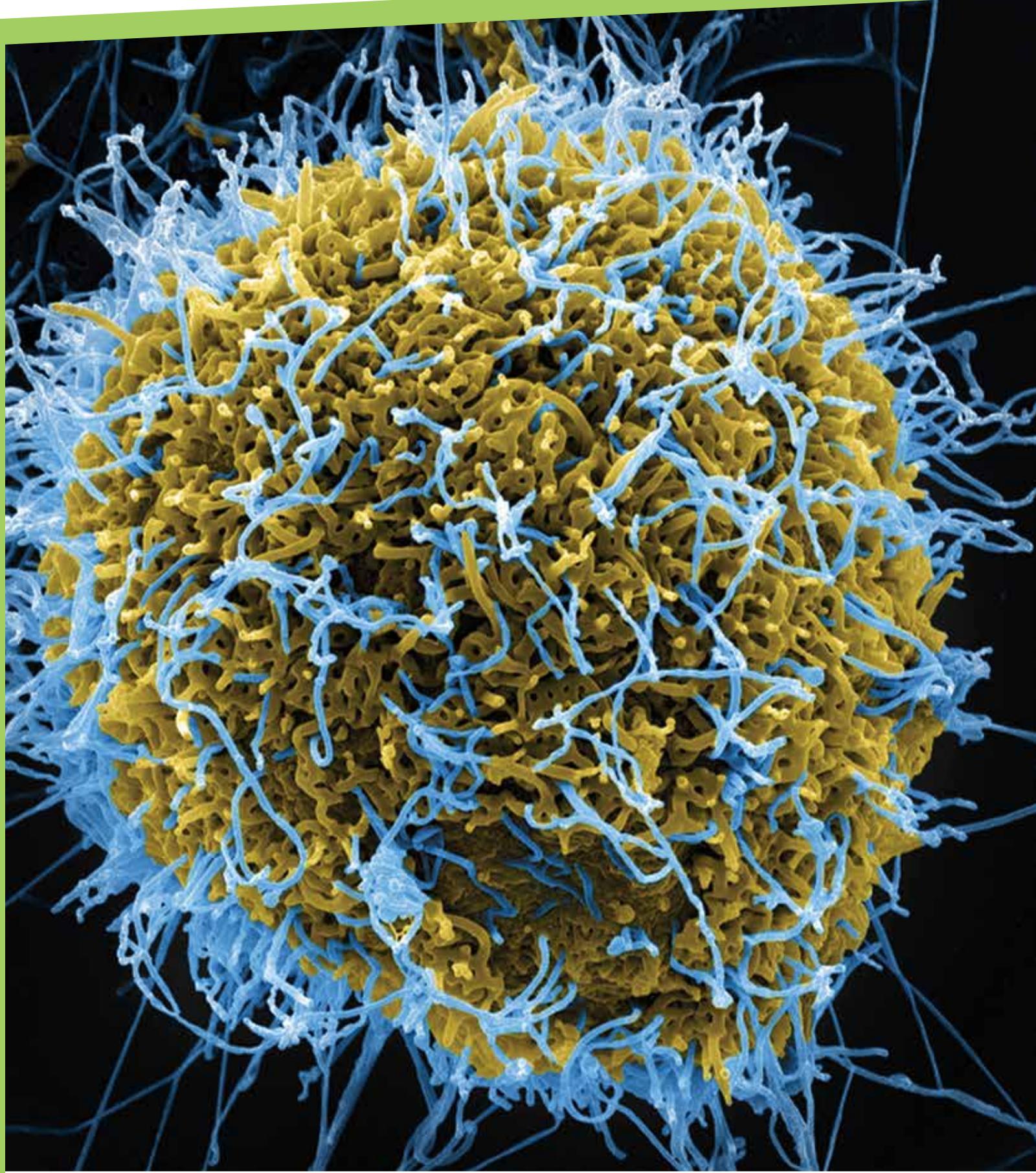
QUESTION NUMBER	SOURCES	QUESTION AND SCORING
5.6.1b	WHO; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there public evidence that the country has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years?</p> <p>Yes = 0 No = 1</p>
5.6.1c	WHO; The Economist Intelligence Unit analyst qualitative assessment based on official national sources, which vary by country	<p>Is there public evidence that the country has not shared pandemic pathogen samples during an outbreak in the past two years?</p> <p>Yes = 0 No = 1</p>

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
CATEGORY 6: OVERALL RISK ENVIRONMENT AND COUNTRY VULNERABILITY TO BIOLOGICAL THREATS		
6.1 Political and security risk		
6.1.1 Government effectiveness		
6.1.1a The Economist Intelligence Unit (EIU)		Government effectiveness (EIU score)
6.1.2 Orderly transfers of power		
6.1.2a The Economist Intelligence Unit		How clear, established, and accepted are constitutional mechanisms for the orderly transfer of power from one government to another?
6.1.3 Risk of social unrest		
6.1.3a The Economist Intelligence Unit		What is the risk of disruptive social unrest?
6.1.4 Risk of terrorism		
6.1.4a The Economist Intelligence Unit		How likely is it that domestic or foreign terrorists will attack with a frequency or severity that causes substantial disruption?
6.1.5 Armed conflict		
6.1.5a The Economist Intelligence Unit		Is this country presently subject to an armed conflict, or is there at least a moderate risk of such conflict in the future?
6.1.6 Government territorial control		
6.1.6a The Economist Intelligence Unit Democracy Index		Does the government's authority extend over the full territory of the country?
6.1.7 International tensions		
6.1.7a The Economist Intelligence Unit		Is there a threat that international disputes/tensions could have a negative effect?
6.2 Socio-economic resilience		
6.2.1 Literacy		
6.2.1a United Nations Development Programme (UNDP); United Nations Educational, Scientific and Cultural Organization (UNESCO); The Economist Intelligence Unit		Adult literacy rate, population 15+ years, both sexes (%)

TABLE A7. SOURCES AND DEFINITIONS OF INDICATORS *continued*

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
6.2.2 Gender equality		
6.2.2a	United Nations Development Programme (UNDP); The Economist Intelligence Unit	United Nations Development Programme (UNDP) Gender Inequality Index score
6.2.3 Poverty levels		
6.2.3a	World Bank; The Economist Intelligence Unit	Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population)
6.2.4 Public confidence in government		
6.2.4a	The Economist Intelligence Unit Democracy Index	Level of confidence in public institutions
6.2.5 Local media and reporting		
6.2.5a	The Economist Intelligence Unit Democracy Index	Is media coverage robust? Is there open and free discussion of public issues, with a reasonable diversity of opinions?
6.3 Infrastructure adequacy		
6.3.1 Adequacy of road network		
6.3.1a	The Economist Intelligence Unit	What is the risk that the road network will prove inadequate to meet needs?
6.3.2 Adequacy of airports		
6.3.2a	The Economist Intelligence Unit	What is the risk that air transport will prove inadequate to meet needs?
6.3.3 Adequacy of power network		
6.3.3a	The Economist Intelligence Unit	What is the risk that power shortages could be disruptive?
6.4 Environmental risks		
6.4.1 Urbanization		
6.4.1a	World Bank	Urban population (% of total population)
6.4.2 Land use		
6.4.2a	World Bank; The Economist Intelligence Unit	Percentage point change in forest area between 2006–2016
6.4.3 Natural disaster risk		
6.4.3a	The Economist Intelligence Unit	What is the risk that the economy will suffer a major disruption owing to a natural disaster?

QUESTION NUMBER	SOURCES	QUESTION AND SCORING
		6.5 Public health vulnerabilities
		6.5.1 Access to quality healthcare
6.5.1a	United Nations; World Bank, UNICEF; Institute for Health Metrics and Evaluation (IHME); Central Intelligence Agency (CIA) World Factbook	Total life expectancy (years)
6.5.1b	Global Burden of Disease; The Economist Intelligence Unit	Healthcare Access and Quality (HAQ) Index frontier score
		6.5.2 Access to potable water and sanitation
6.5.2a	UNICEF; The Economist Intelligence Unit	Percentage of homes with access to at least basic water infrastructure
6.5.2b	UNICEF; The Economist Intelligence Unit	Percentage of homes with access to at least basic sanitation facilities
		6.5.3 Public healthcare spending levels per capita
6.5.3a	WHO Global Health Expenditure database	Domestic general government health expenditure per capita, PPP (current international \$)



Ebola virus particles emerging from infected cell

SELECTED BIBLIOGRAPHY

Common Primary and Secondary Sources

Biological Weapons Convention. Confidence-Building Measures, <https://bwc-ecbm.unog.ch/browse>.

The Economist Intelligence Unit. "Democracy Index." www.eiu.com.

The Economist Intelligence Unit. "Risk Briefing." www.eiu.com.

OIE (World Organisation for Animal Health). "The PVS Pathway." www.oie.int/solidarity/pvs-evaluations.

Performance of Veterinary Services Gap Analysis. www.oie.int/solidarity/pvs-gap-analysis.

VERTIC (Verification Research, Training and Information Centre). BWC Legislation Database. www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database.

WHO (World Health Organization). Antimicrobial Resistance: Library of National Action Plans. www.who.int/antimicrobial-resistance/national-action-plans/library.

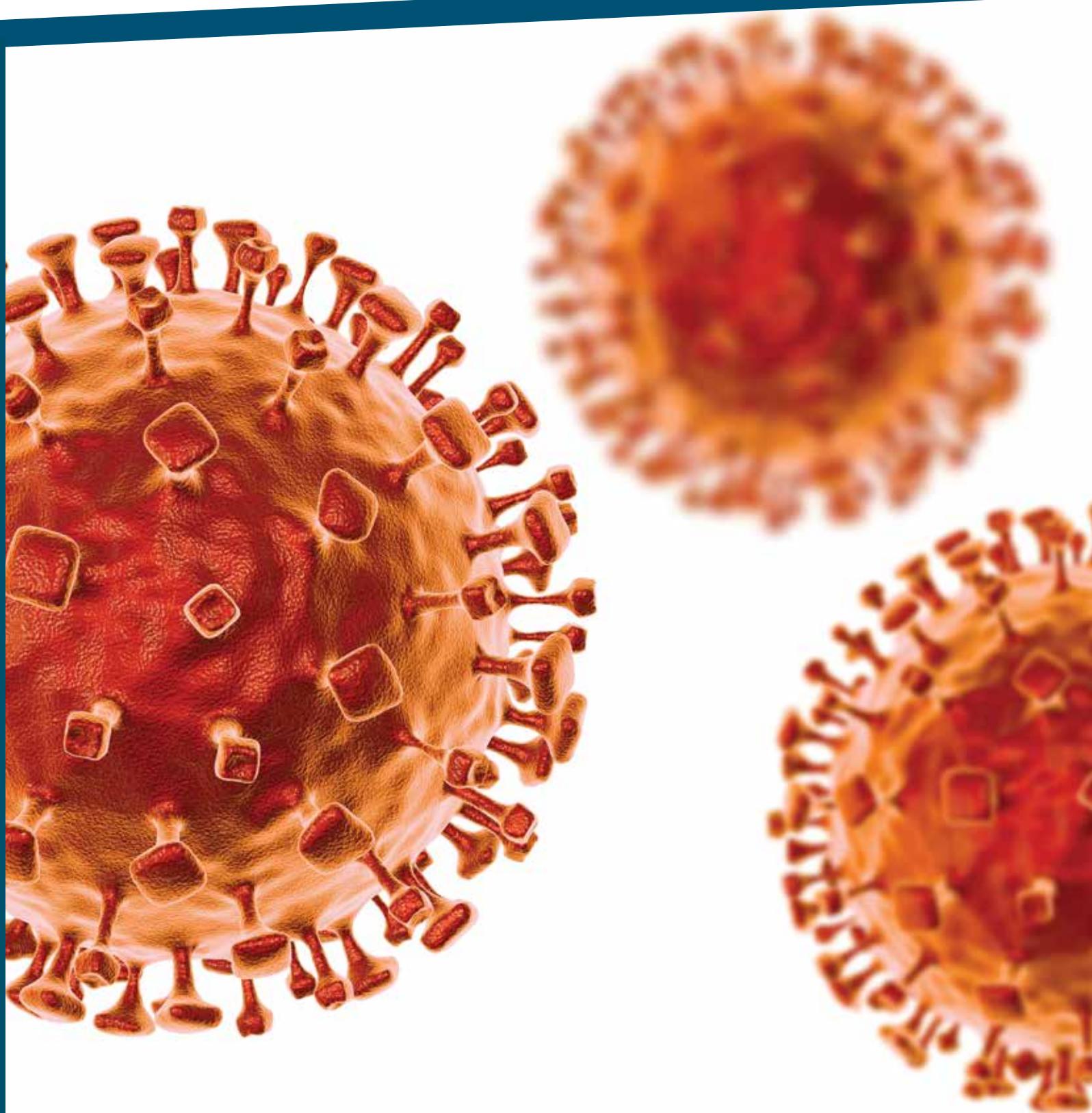
WHO (World Health Organization). Atlas of eHealth Country Profiles 2015: *The Use of eHealth in Support of Universal Health Coverage*. Geneva: World Health Organization, 2016. www.who.int/goe/publications/atlas_2015.

WHO (World Health Organization). Disease Outbreak News (DONs). <https://www.who.int/csr/don>.

WHO (World Health Organization). Joint External Evaluation (JEE) mission reports. www.who.int/ihr/procedures/mission-reports.

WHO (World Health Organization). Strategic Partnership for International Health Regulations (2005) and Health Security (SPH). extranet.who.int/sph.

Note: The Economist Intelligence Unit qualitative assessments are based on official national sources, which vary by country.

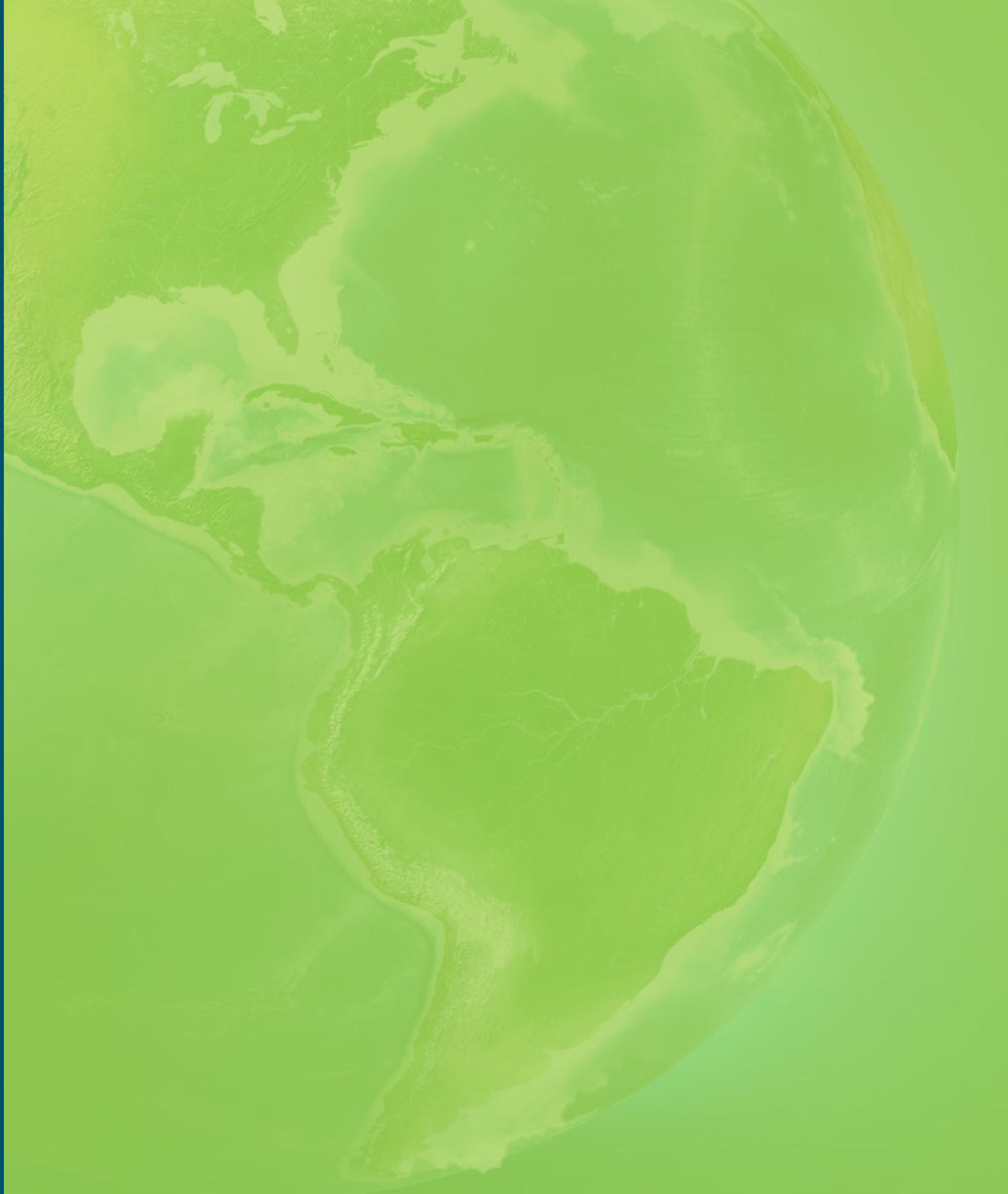


Nipah virus

Country Profiles

Individual country profiles on the following pages include scores across the six categories of the GHS Index and compare those scores to the average.

Visit www.ghsindex.org for more information on each country, to download individual country profiles, to use the score simulator, to download the data model, and more.





PREVENT



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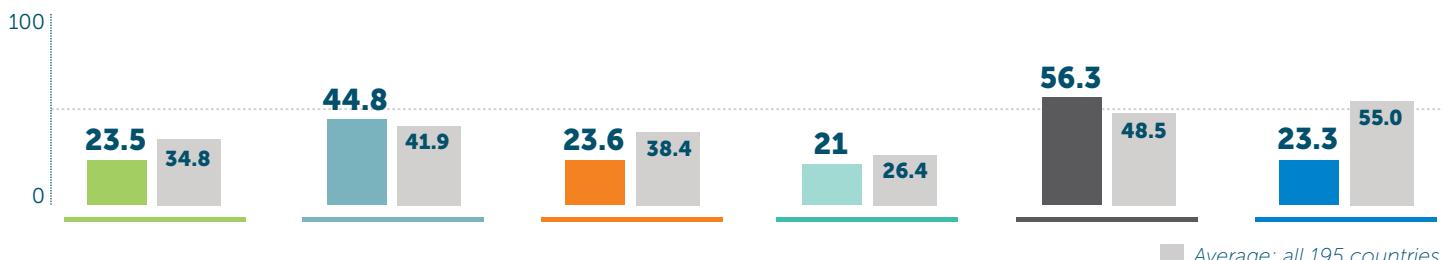
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.5	34.8
Antimicrobial resistance (AMR)	16.7	42.4
Zoonotic disease	27.2	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	81.6	85.0
DETECTION AND REPORTING	44.8	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	23.6	38.4
Emergency preparedness and response planning	18.8	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	31.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	21.0	26.4
Health capacity in clinics, hospitals and community care centers	43.2	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	40	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	56.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	75	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	23.3	55.0
Political and security risks	3.6	60.4
Socio-economic resilience	45.4	66.1
Infrastructure adequacy	0	49.0
Environmental risks	55.7	52.9
Public health vulnerabilities	19.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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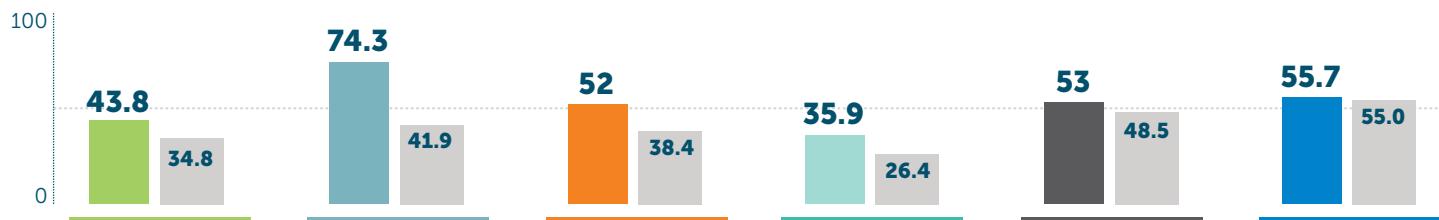
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	43.8	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	27.8	27.1
Biosecurity	40	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	74.3	41.9
Laboratory systems	58.3	54.4
Real-time surveillance and reporting	45	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	52.0	38.4
Emergency preparedness and response planning	50	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	78.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	35.9	26.4
Health capacity in clinics, hospitals and community care centers	10.8	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	30	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	53.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	46.9	53.4
JEE and PVS	25	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	55.7	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	74.2	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	50.4	52.9
Public health vulnerabilities	55.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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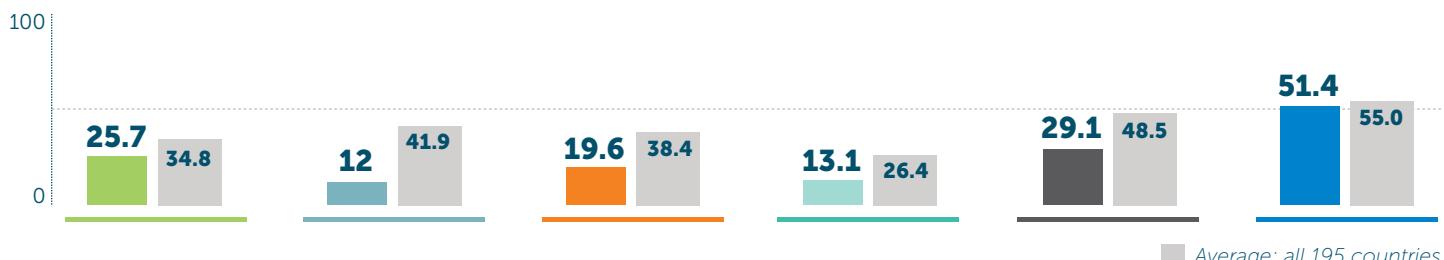
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	25.7	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	8.2	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	12.0	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	28.3	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	19.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	69.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	13.1	26.4
Health capacity in clinics, hospitals and community care centers	7.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	29.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	40.6	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	51.4	55.0
Political and security risks	46.4	60.4
Socio-economic resilience	63.4	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	54.8	52.9
Public health vulnerabilities	52.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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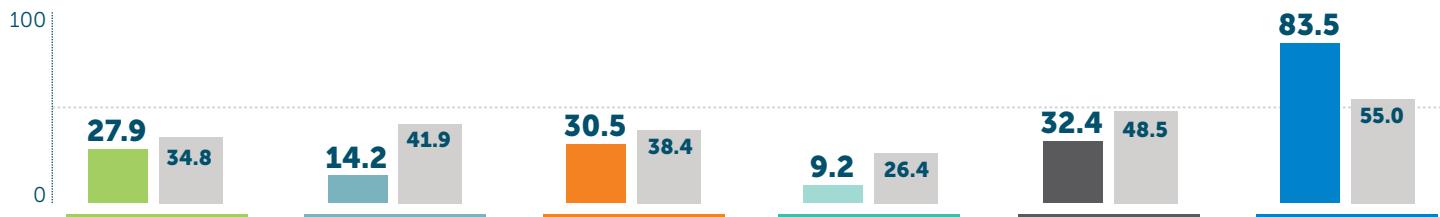
HEALTH



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RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.9	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	28.8	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	14.2	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	36.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	30.5	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	89.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.2	26.4
Health capacity in clinics, hospitals and community care centers	16.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	35	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	32.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	31.3	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	83.5	55.0
Political and security risks	96.4	60.4
Socio-economic resilience	87.1	66.1
Infrastructure adequacy	100	49.0
Environmental risks	56.7	52.9
Public health vulnerabilities	73.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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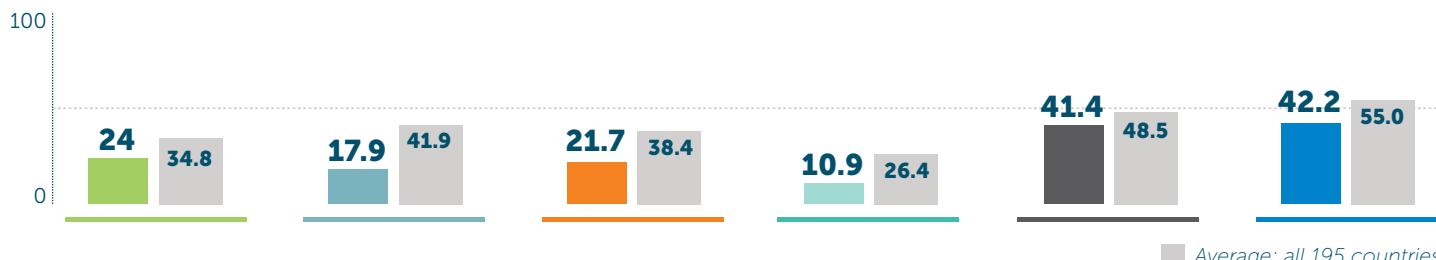
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.0	34.8	HEALTH SYSTEM	10.9	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	2.7	24.4
Zoonotic disease	6.8	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	39.8	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	75.4	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	17.9	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	41.4	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	21.7	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	42.2	55.0
Emergency response operation	0	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	55.4	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	49.7	72.7	Environmental risks	47.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	14.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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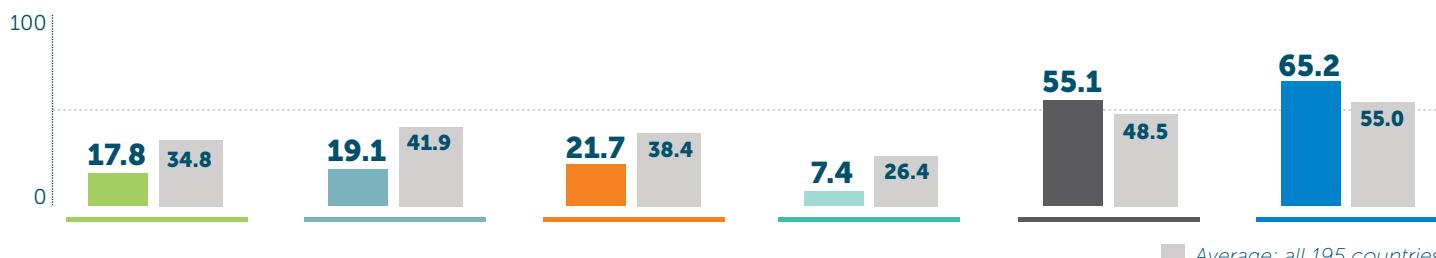
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	17.8	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	19.1	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	15	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	21.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	86.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	7.4	26.4
Health capacity in clinics, hospitals and community care centers	9.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	31.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	55.1	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	65.2	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	71.8	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	47.6	52.9
Public health vulnerabilities	54.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



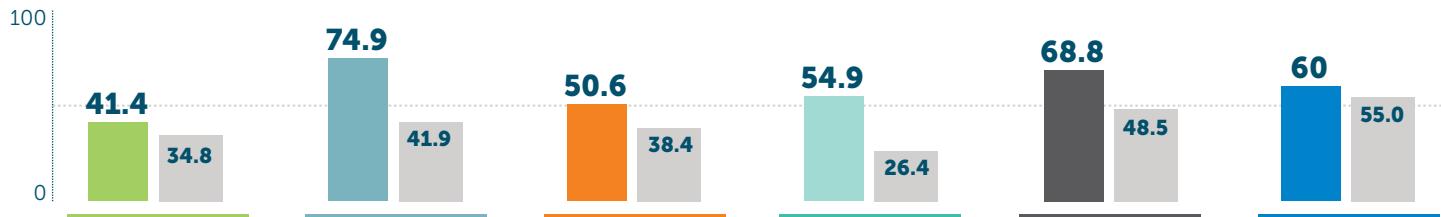
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	41.4	34.8	HEALTH SYSTEM	54.9	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	46	24.4
Zoonotic disease	49.8	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	8	16.0	Healthcare access	48.2	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	50	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	91.2	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	74.9	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	68.8	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	70	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	50.6	38.4	Financing	50	36.4
Emergency preparedness and response planning	50	16.9	Commitment to sharing of genetic & biological data & specimens	100	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	60.0	55.0
Emergency response operation	0	23.6	Political and security risks	71.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	81.6	66.1
Risk communication	75	39.4	Infrastructure adequacy	41.7	49.0
Access to communications infrastructure	93.1	72.7	Environmental risks	45.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	58.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



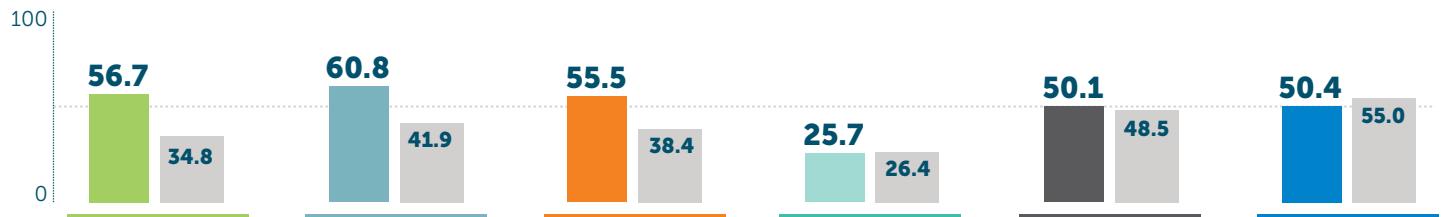
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.7	34.8
Antimicrobial resistance (AMR)	41.7	42.4
Zoonotic disease	30.4	27.1
Biosecurity	58.7	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	60.8	41.9
Laboratory systems	58.3	54.4
Real-time surveillance and reporting	41.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	55.5	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	75	39.4
Access to communications infrastructure	88.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	25.7	26.4
Health capacity in clinics, hospitals and community care centers	18	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	28.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	50.1	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	43.8	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.4	55.0
Political and security risks	50	60.4
Socio-economic resilience	74.2	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	41.3	52.9
Public health vulnerabilities	53.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



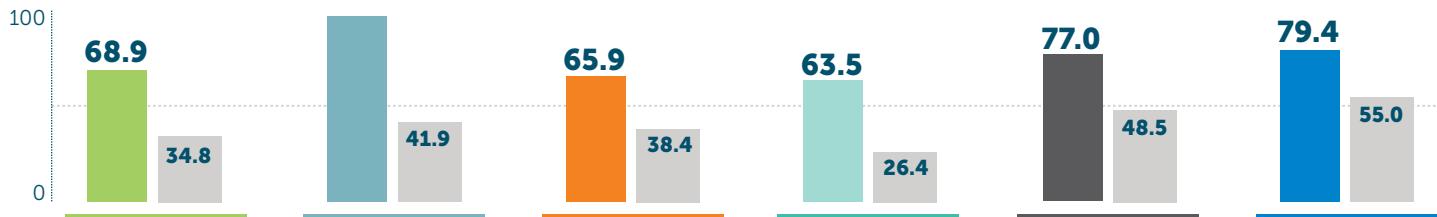
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	68.9	34.8	HEALTH SYSTEM	63.5	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	66.3	24.4
Zoonotic disease	76.9	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	62.7	16.0	Healthcare access	43.8	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	33.3	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	96.5	85.0	Capacity to test and approve new medical countermeasures	100	42.2
DETECTION AND REPORTING	97.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	77.0	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	90	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	100	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	75	17.7
RAPID RESPONSE	65.9	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	50	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	79.4	55.0
Emergency response operation	33.3	23.6	Political and security risks	89.3	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	88.1	66.1
Risk communication	100	39.4	Infrastructure adequacy	83.3	49.0
Access to communications infrastructure	88.8	72.7	Environmental risks	57.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	76.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



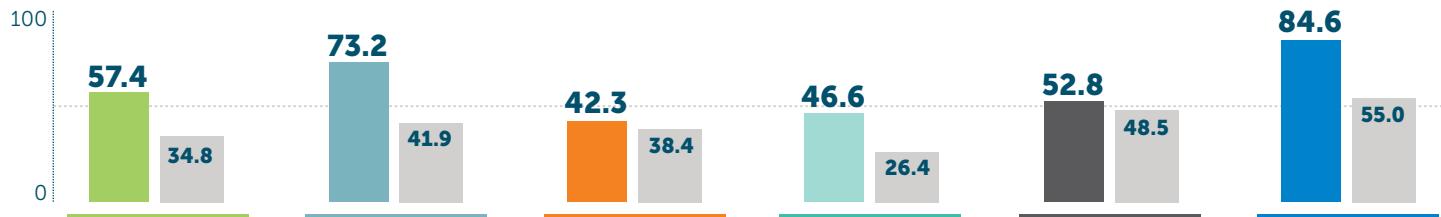
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	57.4	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	62.5	27.1
Biosecurity	44	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	73.2	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	80	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	42.3	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	88.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	46.6	26.4
Health capacity in clinics, hospitals and community care centers	32	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	42.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	100	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	84.6	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	88.9	66.1
Infrastructure adequacy	100	49.0
Environmental risks	68.7	52.9
Public health vulnerabilities	78	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



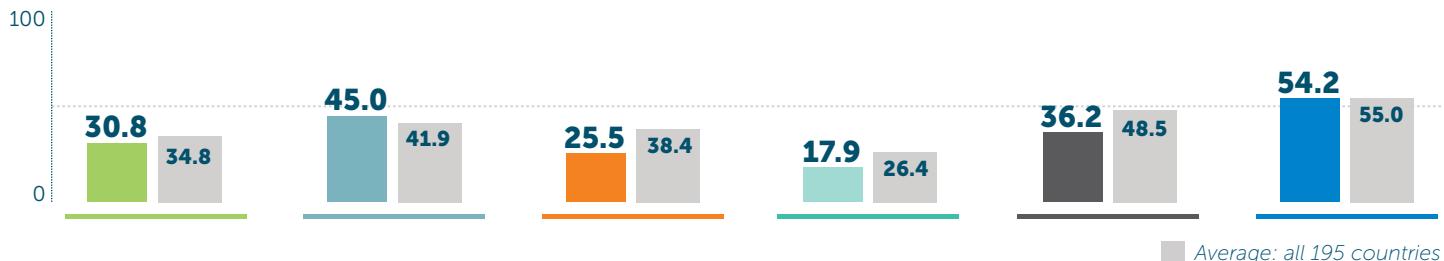
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	30.8	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	35.1	27.1
Biosecurity	24	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	45.0	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	23.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	25.5	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	71.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	17.9	26.4
Health capacity in clinics, hospitals and community care centers	21.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	26.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	36.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	93.8	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	54.2	55.0
Political and security risks	32.1	60.4
Socio-economic resilience	62.9	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	66.5	52.9
Public health vulnerabilities	47.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



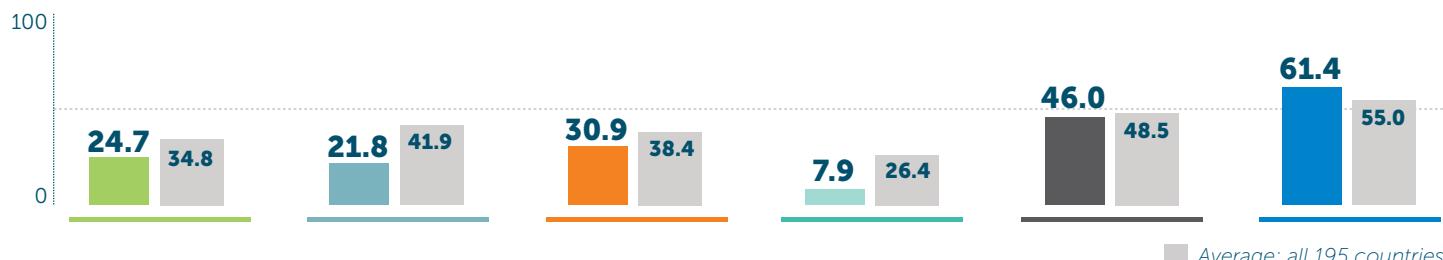
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.7	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	14.8	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	21.8	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	25	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	30.9	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	79.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	7.9	26.4
Health capacity in clinics, hospitals and community care centers	13.3	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	61.4	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	72.2	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	25.4	52.9
Public health vulnerabilities	55	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



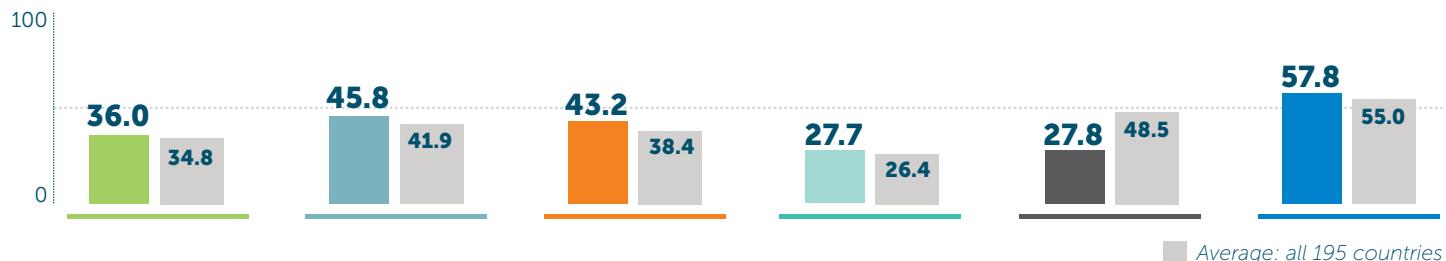
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	36.0	34.8	HEALTH SYSTEM	27.7	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	7.4	24.4
Zoonotic disease	21	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	4	16.0	Healthcare access	29.5	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	45.8	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	27.8	48.5
Laboratory systems	75	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	75	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	43.2	38.4	Financing	0	36.4
Emergency preparedness and response planning	6.3	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	57.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	42.9	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	64	66.1
Risk communication	75	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	99.4	72.7	Environmental risks	56.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	60.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



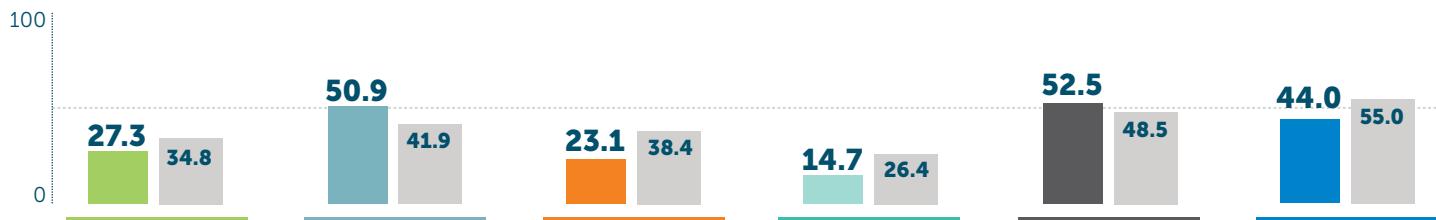
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.3	34.8
Antimicrobial resistance (AMR)	16.7	42.4
Zoonotic disease	35.4	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	50.9	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	45	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	23.1	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	45	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	14.7	26.4
Health capacity in clinics, hospitals and community care centers	27.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	23.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	75	53.4
JEE and PVS	75	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	44.0	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	69	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	43	52.9
Public health vulnerabilities	38.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



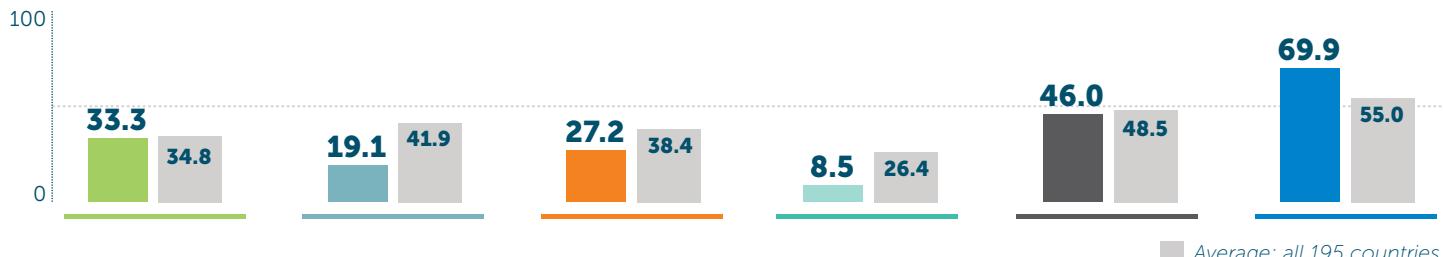
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	33.3	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	1.1	27.1
Biosecurity	0	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	19.1	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	15	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	27.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	85.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	8.5	26.4
Health capacity in clinics, hospitals and community care centers	18.3	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	28.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	69.9	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	83.5	66.1
Infrastructure adequacy	75	49.0
Environmental risks	45.2	52.9
Public health vulnerabilities	56.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



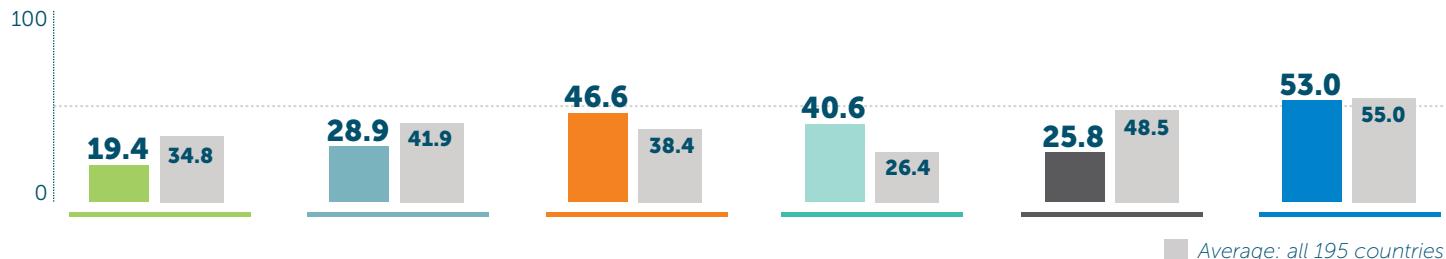
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	19.4	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	26.7	27.1
Biosecurity	24	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	48.2	85.0
DETECTION AND REPORTING	28.9	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	26.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	46.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	88.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	40.6	26.4
Health capacity in clinics, hospitals and community care centers	63.1	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	47	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	25.8	48.5
IHR reporting compliance and disaster risk reduction	0	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	46.9	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	53.0	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	67.6	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	53.9	52.9
Public health vulnerabilities	57.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



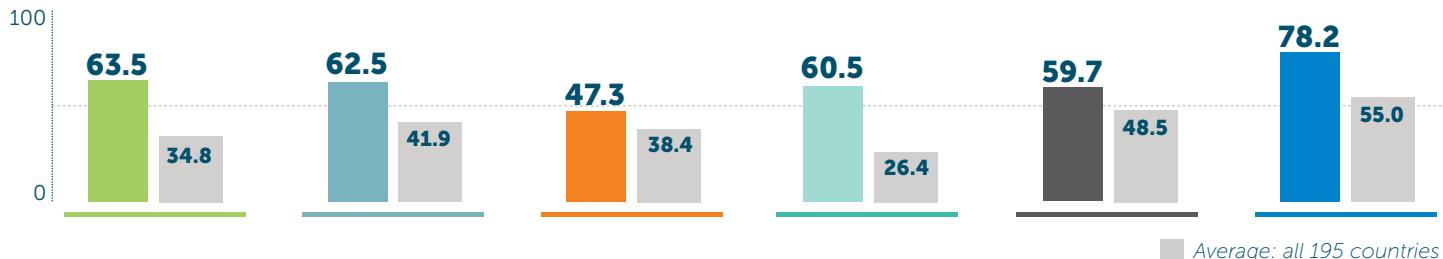
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	63.5	34.8	HEALTH SYSTEM	60.5	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	51.8	24.4
Zoonotic disease	44.1	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	44	16.0	Healthcare access	44.6	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	62.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	59.7	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	88.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	47.3	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	78.2	55.0
Emergency response operation	33.3	23.6	Political and security risks	75	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	99.8	66.1
Risk communication	0	39.4	Infrastructure adequacy	83.3	49.0
Access to communications infrastructure	90.2	72.7	Environmental risks	53.5	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	78.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



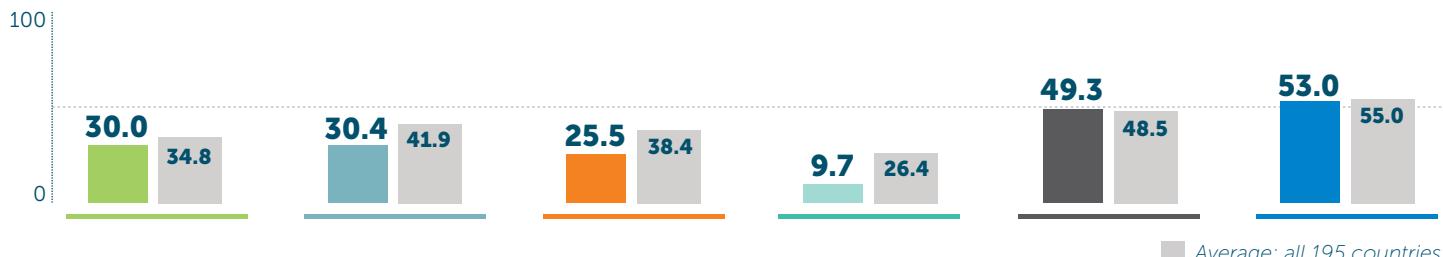
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	30.0	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	7.1	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	30.4	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	25.5	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	64.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.7	26.4
Health capacity in clinics, hospitals and community care centers	22.2	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	31.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	53.0	55.0
Political and security risks	67.9	60.4
Socio-economic resilience	69.3	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	35.8	52.9
Public health vulnerabilities	47.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



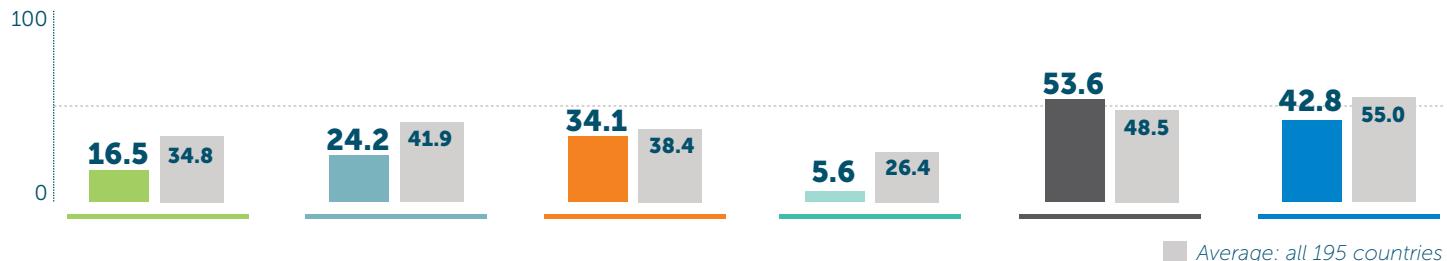
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	16.5	34.8	HEALTH SYSTEM	5.6	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	1.5	24.4
Zoonotic disease	7.1	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	28.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	78.1	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	24.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	53.6	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	75	17.7
RAPID RESPONSE	34.1	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	42.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	64.3	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	36.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	50	72.7	Environmental risks	64.7	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	15.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



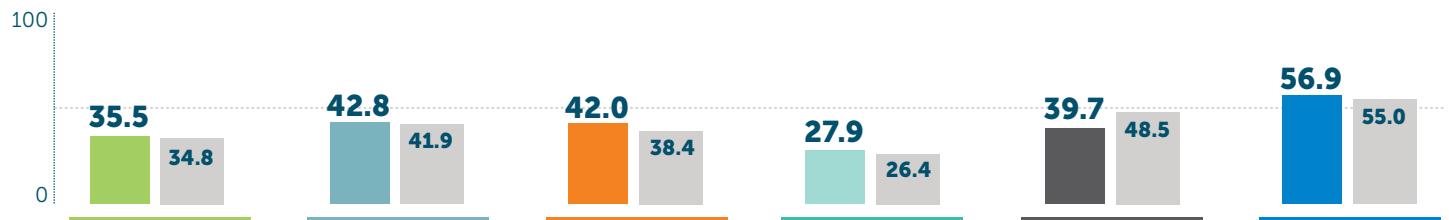
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	35.5	34.8
Antimicrobial resistance (AMR)	41.7	42.4
Zoonotic disease	50.4	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	42.8	41.9
Laboratory systems	58.3	54.4
Real-time surveillance and reporting	31.7	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	42.0	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	0	16.2
Emergency response operation	66.7	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	76.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	27.9	26.4
Health capacity in clinics, hospitals and community care centers	21.6	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	39.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	40.6	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	56.9	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	57.8	66.1
Infrastructure adequacy	50	49.0
Environmental risks	46.2	52.9
Public health vulnerabilities	41.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



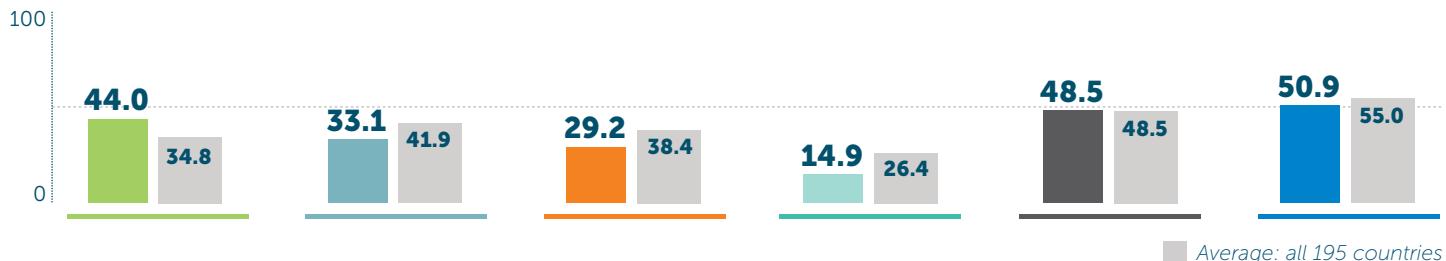
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	44.0	34.8	HEALTH SYSTEM	14.9	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	3.6	24.4
Zoonotic disease	55.1	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	47.1	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	86	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	33.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	48.5	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	58.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	0	42.3	International commitments	31.3	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	29.2	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	50.9	55.0
Emergency response operation	33.3	23.6	Political and security risks	57.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	76.2	66.1
Risk communication	25	39.4	Infrastructure adequacy	41.7	49.0
Access to communications infrastructure	66	72.7	Environmental risks	41.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	38.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



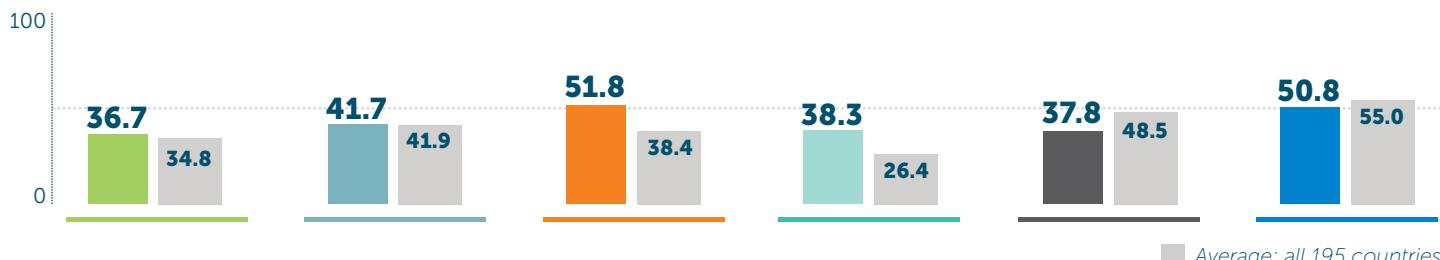
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	36.7	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	27.5	27.1
Biosecurity	0	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	73.7	85.0
DETECTION AND REPORTING	41.7	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	51.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	85.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	38.3	26.4
Health capacity in clinics, hospitals and community care centers	15.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.7	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	37.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	46.9	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.8	55.0
Political and security risks	42.9	60.4
Socio-economic resilience	66	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	47.1	52.9
Public health vulnerabilities	57.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



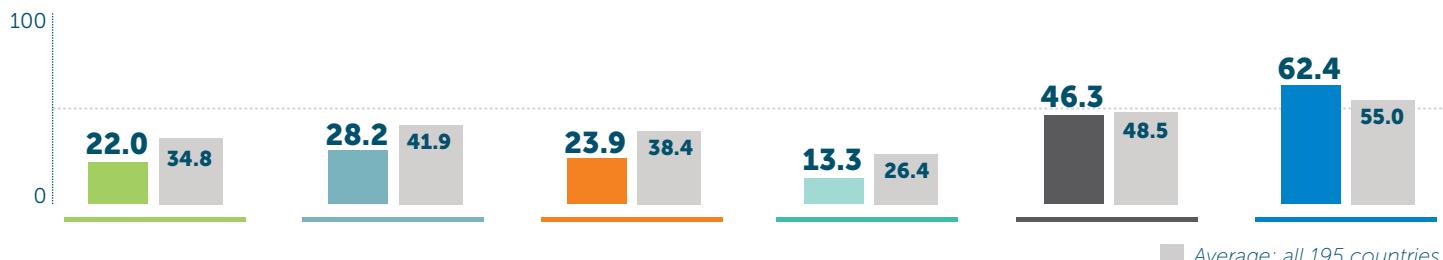
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.0	34.8	HEALTH SYSTEM	13.3	26.4
Antimicrobial resistance (AMR)	25	42.4	Health capacity in clinics, hospitals and community care centers	6.1	24.4
Zoonotic disease	16.3	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	32.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	77.2	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	28.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	46.3	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	40	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	23.9	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	62.4	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	73.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	68.4	72.7	Environmental risks	60.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	36.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



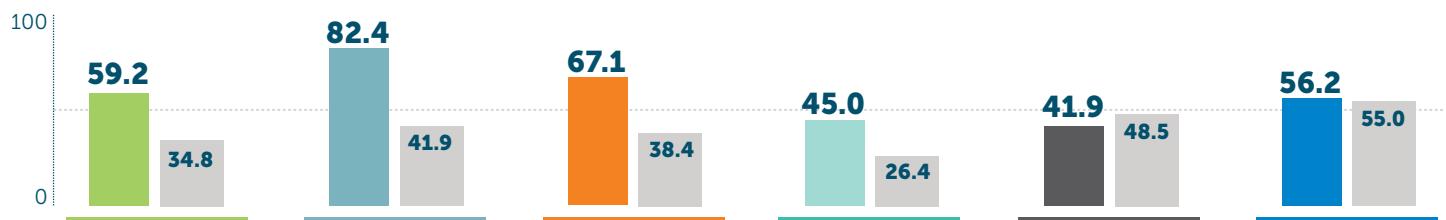
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	59.2	34.8
Antimicrobial resistance (AMR)	83.3	42.4
Zoonotic disease	56.3	27.1
Biosecurity	48	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	82.4	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	81.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	67.1	38.4
Emergency preparedness and response planning	87.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	75	39.4
Access to communications infrastructure	87	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	45.0	26.4
Health capacity in clinics, hospitals and community care centers	55.6	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	41.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	46.9	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	56.2	55.0
Political and security risks	71.4	60.4
Socio-economic resilience	68.1	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	54.8	52.9
Public health vulnerabilities	52.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



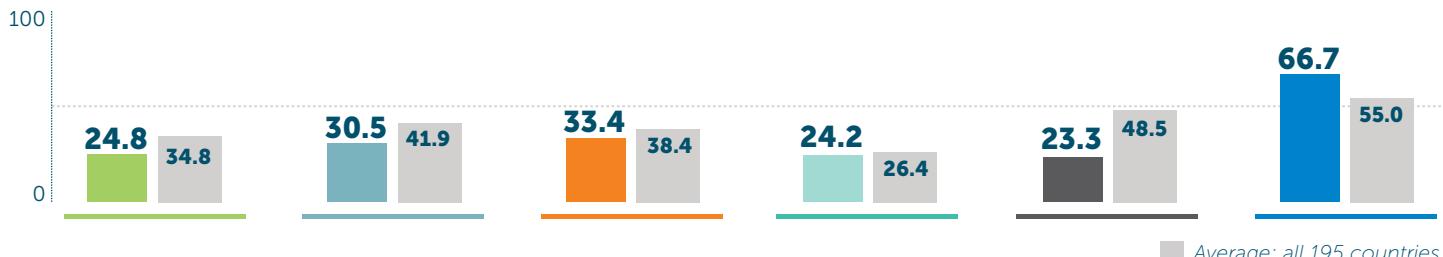
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.8	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	8.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	30.5	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	25	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	33.4	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	92.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	24.2	26.4
Health capacity in clinics, hospitals and community care centers	38.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32.7	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	23.3	48.5
IHR reporting compliance and disaster risk reduction	0	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	66.7	55.0
Political and security risks	71.4	60.4
Socio-economic resilience	64	66.1
Infrastructure adequacy	75	49.0
Environmental risks	58.5	52.9
Public health vulnerabilities	63.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



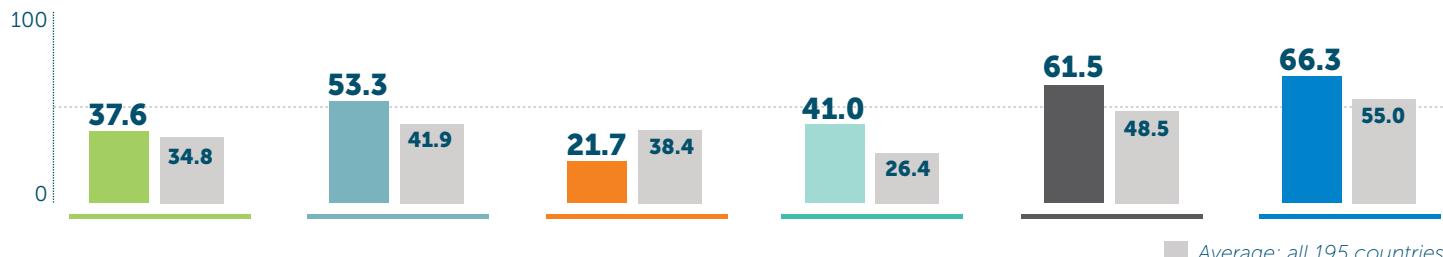
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	37.6	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	24.3	27.1
Biosecurity	32	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	95.6	85.0
DETECTION AND REPORTING	53.3	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	70	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	21.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	86.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	41.0	26.4
Health capacity in clinics, hospitals and community care centers	50.3	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	61.5	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	66.3	55.0
Political and security risks	75	60.4
Socio-economic resilience	84.9	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	56.4	52.9
Public health vulnerabilities	56.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



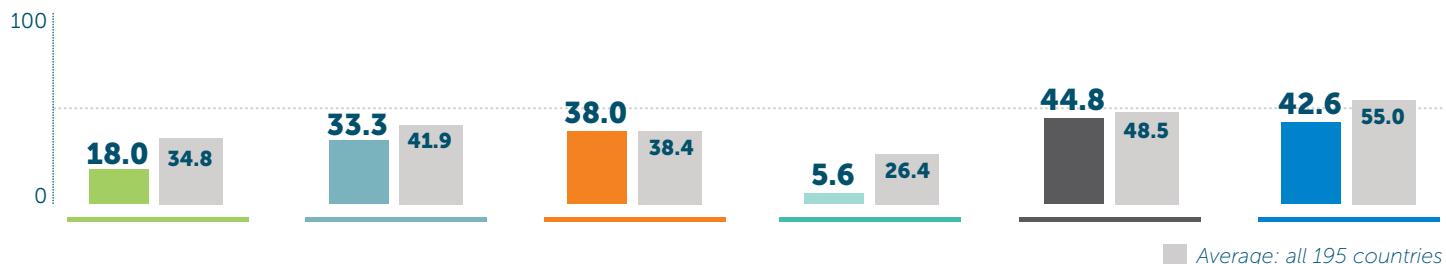
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	18.0	34.8	HEALTH SYSTEM	5.6	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	1.1	24.4
Zoonotic disease	1.8	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	29.4	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	90.4	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	33.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	44.8	48.5
Laboratory systems	58.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	20	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	78.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	38.0	38.4	Financing	50	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	42.6	55.0
Emergency response operation	33.3	23.6	Political and security risks	42.9	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	53.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	65.6	72.7	Environmental risks	75.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	13.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



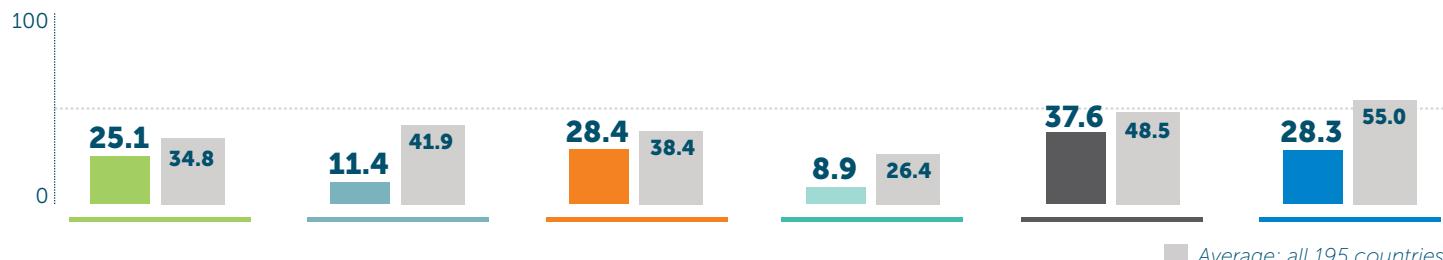
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	25.1	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	9.9	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	11.4	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	28.4	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	48.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	8.9	26.4
Health capacity in clinics, hospitals and community care centers	1.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	37.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	28.3	55.0
Political and security risks	14.3	60.4
Socio-economic resilience	33.8	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	66.4	52.9
Public health vulnerabilities	17.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



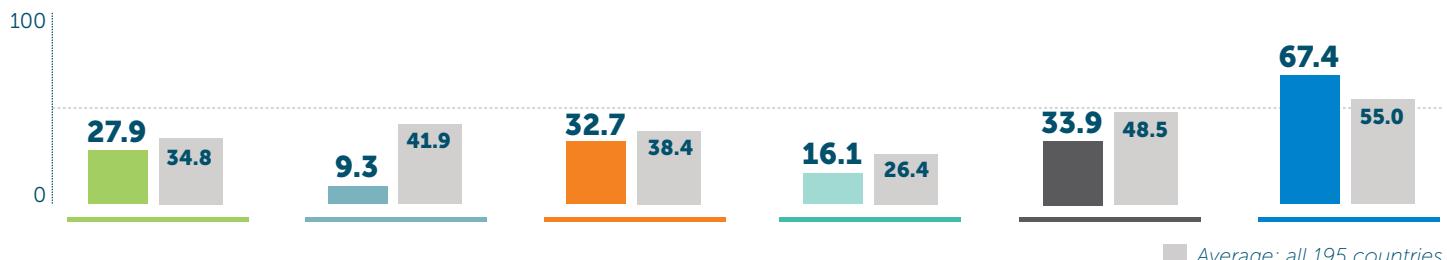
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.9	34.8	HEALTH SYSTEM	16.1	26.4
Antimicrobial resistance (AMR)	25	42.4	Health capacity in clinics, hospitals and community care centers	6.3	24.4
Zoonotic disease	27.4	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	47.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	9.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	33.9	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	18.3	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	32.7	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	67.4	55.0
Emergency response operation	33.3	23.6	Political and security risks	85.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	74.7	66.1
Risk communication	0	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	75	72.7	Environmental risks	68.5	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	41.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



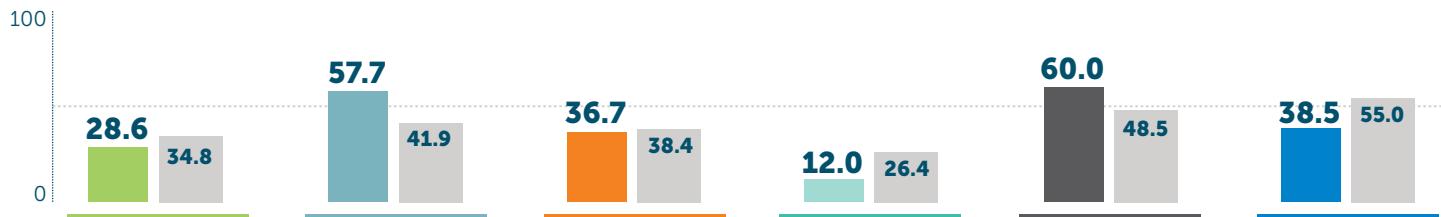
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	28.6	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	28.2	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	57.7	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	38.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	36.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	100	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	60.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.0	26.4
Health capacity in clinics, hospitals and community care centers	18.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	60.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	78.1	53.4
JEE and PVS	50	17.7
Financing	66.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.5	55.0
Political and security risks	50	60.4
Socio-economic resilience	51.8	66.1
Infrastructure adequacy	25	49.0
Environmental risks	35.6	52.9
Public health vulnerabilities	29.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



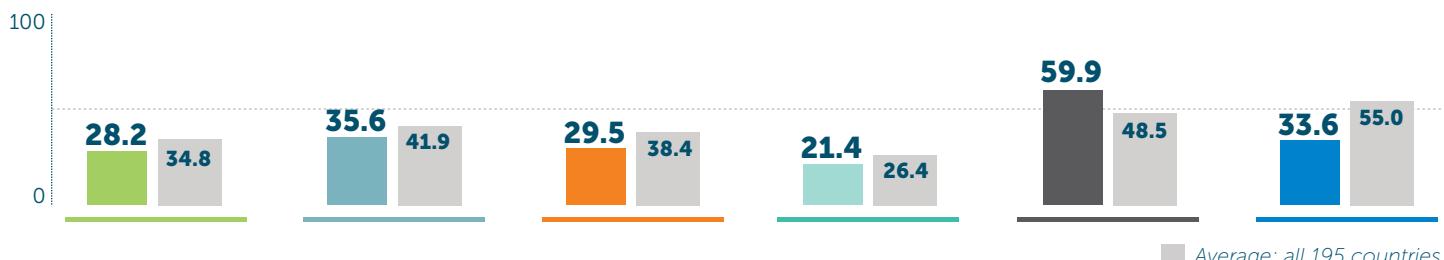
HEALTH



NORMS



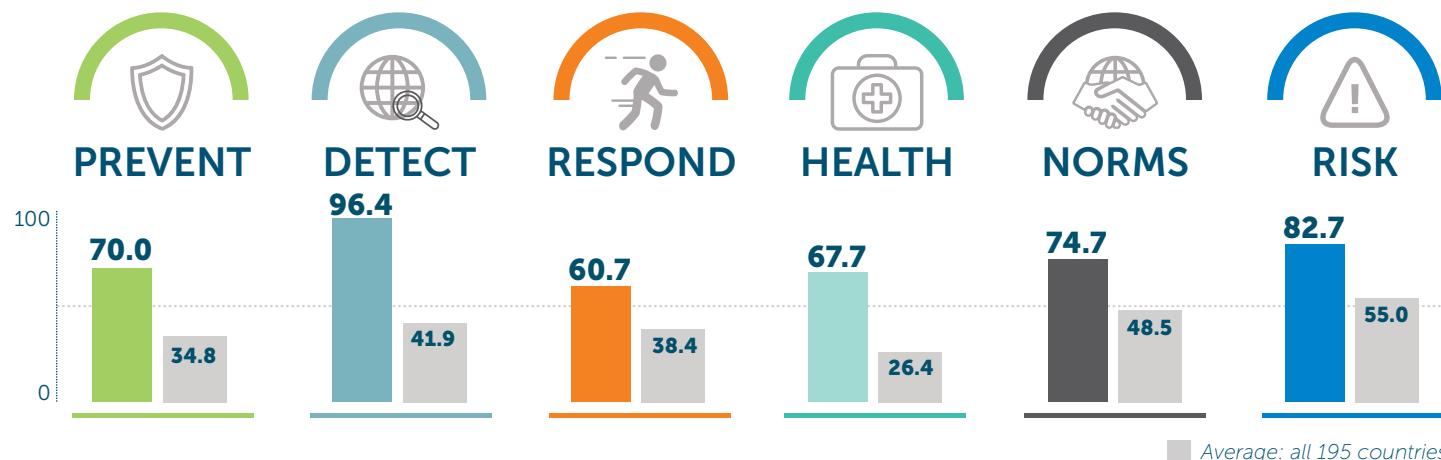
RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	28.2	34.8	HEALTH SYSTEM	21.4	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	27.7	24.4
Zoonotic disease	28.7	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	4	16.0	Healthcare access	26	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	80.7	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	35.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	59.9	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	36.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	37.5	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	29.5	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	33.6	55.0
Emergency response operation	33.3	23.6	Political and security risks	21.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	55.4	66.1
Risk communication	25	39.4	Infrastructure adequacy	25	49.0
Access to communications infrastructure	68.1	72.7	Environmental risks	52.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	18.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	70.0	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	33	27.1
Biosecurity	82.7	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	91.2	85.0
DETECTION AND REPORTING	96.4	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	86.7	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	60.7	38.4
Emergency preparedness and response planning	50	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	75	39.4
Access to communications infrastructure	82.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	67.7	26.4
Health capacity in clinics, hospitals and community care centers	43.3	24.4
Medical countermeasures and personnel deployment	100	21.2
Healthcare access	44.7	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	74.7	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	25	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	100	68.1
RISK ENVIRONMENT	82.7	55.0
Political and security risks	92.9	60.4
Socio-economic resilience	98.5	66.1
Infrastructure adequacy	83.3	49.0
Environmental risks	59.2	52.9
Public health vulnerabilities	76.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

Central African Republic

27.3 Index Score

159/195



PREVENT



DETECT



RESPOND



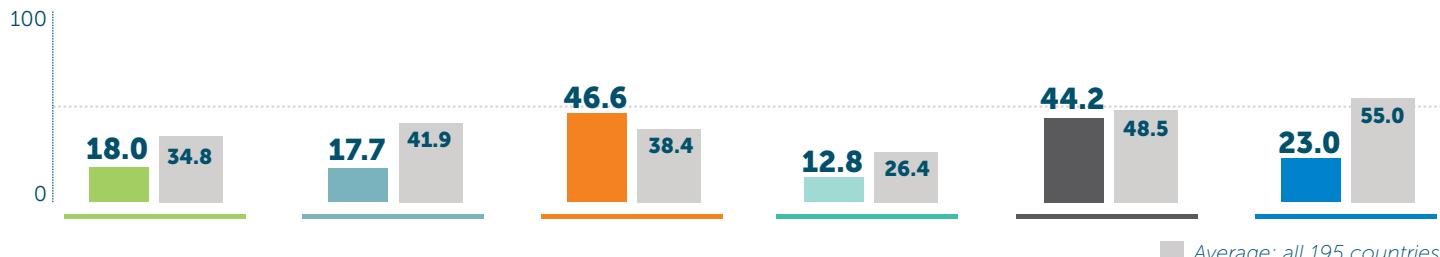
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	18.0	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	27.3	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	57	85.0
DETECTION AND REPORTING	17.7	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	46.6	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	46.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.8	26.4
Health capacity in clinics, hospitals and community care centers	1.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	22.2	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	44.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	15.6	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	23.0	55.0
Political and security risks	10.7	60.4
Socio-economic resilience	20.9	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	66	52.9
Public health vulnerabilities	8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



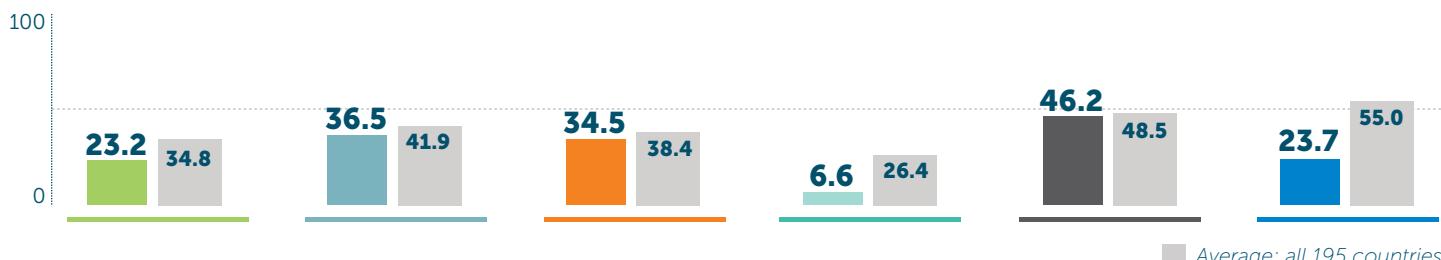
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.2	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	0.5	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	70.2	85.0
DETECTION AND REPORTING	36.5	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	40	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	34.5	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	100	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	42.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	6.6	26.4
Health capacity in clinics, hospitals and community care centers	0.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	18.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	0	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	23.7	55.0
Political and security risks	17.9	60.4
Socio-economic resilience	15.4	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	71.5	52.9
Public health vulnerabilities	4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



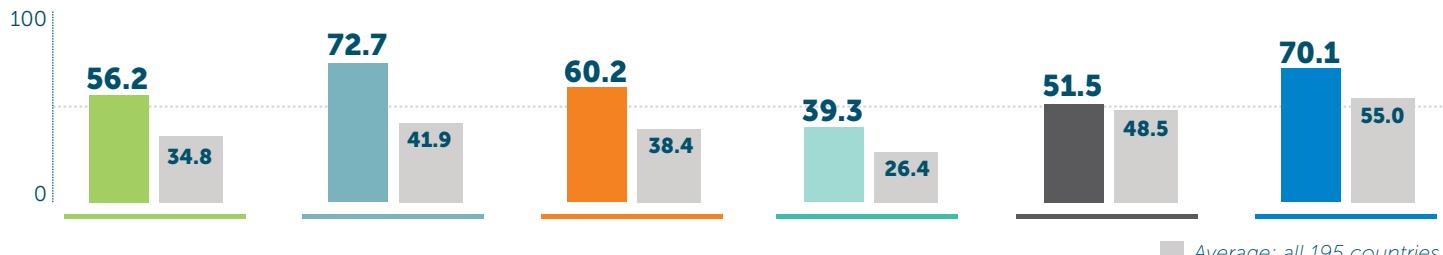
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.2	34.8
Antimicrobial resistance (AMR)	83.3	42.4
Zoonotic disease	20.7	27.1
Biosecurity	28	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	94.7	85.0
DETECTION AND REPORTING	72.7	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	61.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	60.2	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	75	39.4
Access to communications infrastructure	94.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	39.3	26.4
Health capacity in clinics, hospitals and community care centers	6.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	45	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	51.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	90.6	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	70.1	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	81.8	66.1
Infrastructure adequacy	75	49.0
Environmental risks	45	52.9
Public health vulnerabilities	63	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



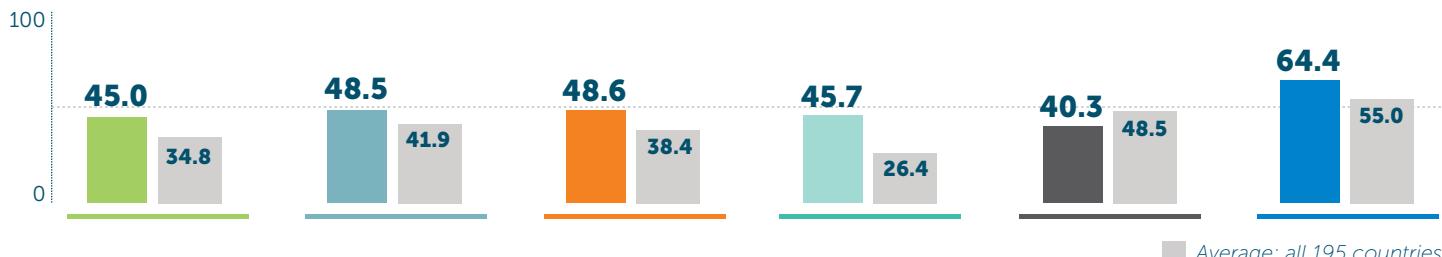
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	45.0	34.8
Antimicrobial resistance (AMR)	83.3	42.4
Zoonotic disease	26.7	27.1
Biosecurity	56	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	48.5	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	68.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	48.6	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	83.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	45.7	26.4
Health capacity in clinics, hospitals and community care centers	38.3	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	31.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	100	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	40.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	50	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	33.3	68.1
RISK ENVIRONMENT	64.4	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	75.8	66.1
Infrastructure adequacy	75	49.0
Environmental risks	62.8	52.9
Public health vulnerabilities	53	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



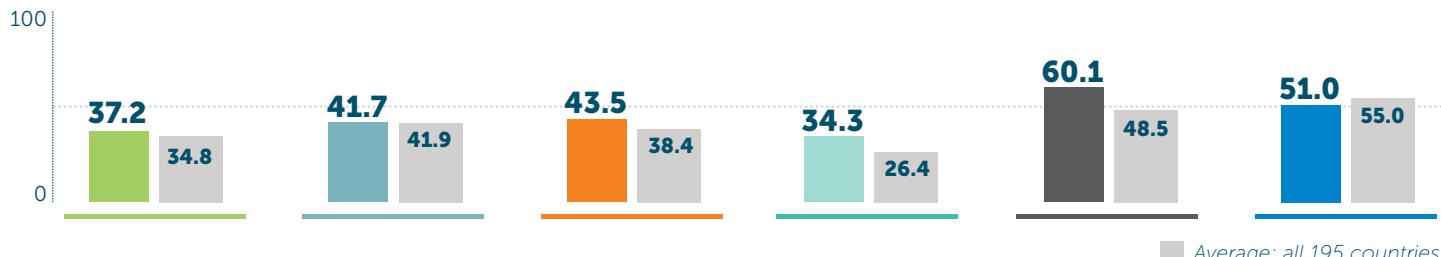
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	37.2	34.8	HEALTH SYSTEM	34.3	26.4
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	7.4	24.4
Zoonotic disease	44.8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	48.7	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	41.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	60.1	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	43.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	93.8	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	43.5	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	51.0	55.0
Emergency response operation	33.3	23.6	Political and security risks	50	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	69.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	79.1	72.7	Environmental risks	32.5	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	52.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



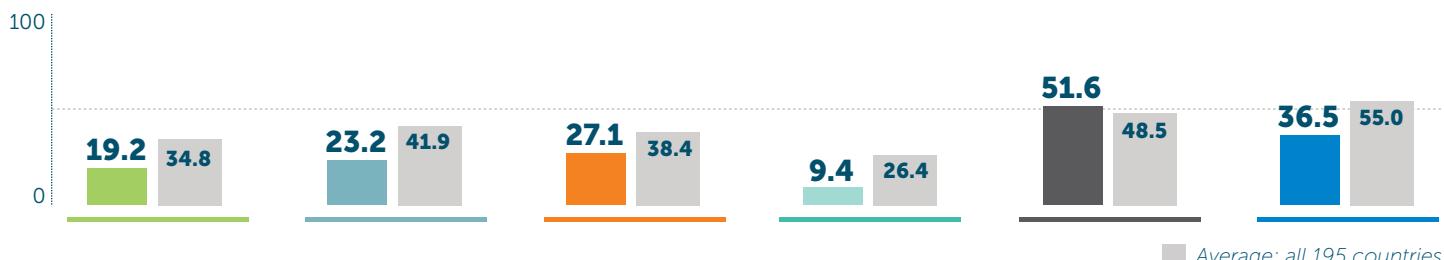
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	19.2	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	23.2	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	27.1	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	40.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.4	26.4
Health capacity in clinics, hospitals and community care centers	5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	29.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	51.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	12.5	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	36.5	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	49.5	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	41.5	52.9
Public health vulnerabilities	25.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

Congo (Brazzaville)

23.6 Index Score

173/195



PREVENT



DETECT



RESPOND



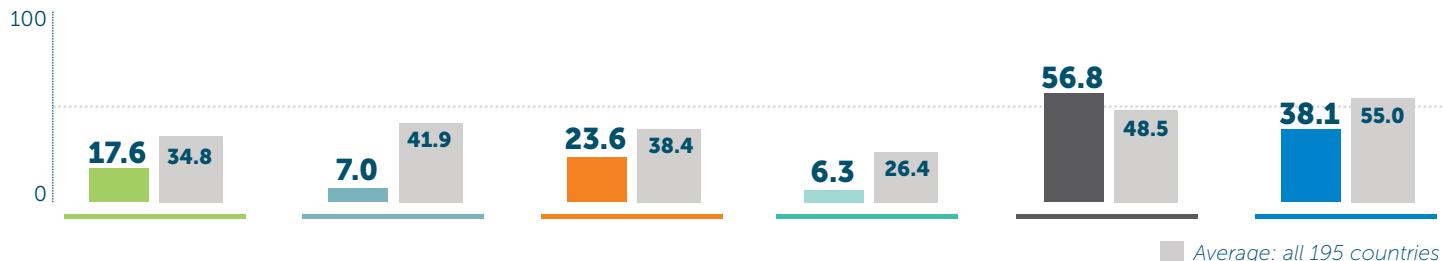
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	17.6	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	7.1	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	83.3	85.0
DETECTION AND REPORTING	7.0	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	23.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	65.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	6.3	26.4
Health capacity in clinics, hospitals and community care centers	3.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	56.8	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	75	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.1	55.0
Political and security risks	32.1	60.4
Socio-economic resilience	53.5	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	47.6	52.9
Public health vulnerabilities	19.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

Congo (Democratic Republic)

26.5 Index Score

161/195



PREVENT



DETECT



RESPOND



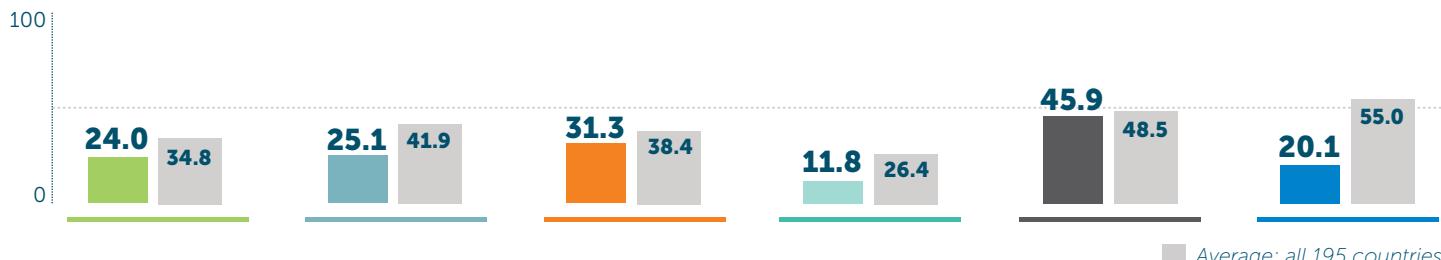
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.0	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	20.4	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	25.1	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	30	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	31.3	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	40.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	11.8	26.4
Health capacity in clinics, hospitals and community care centers	18.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	29.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	45.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	20.1	55.0
Political and security risks	7.1	60.4
Socio-economic resilience	28.7	66.1
Infrastructure adequacy	0	49.0
Environmental risks	62.9	52.9
Public health vulnerabilities	9.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



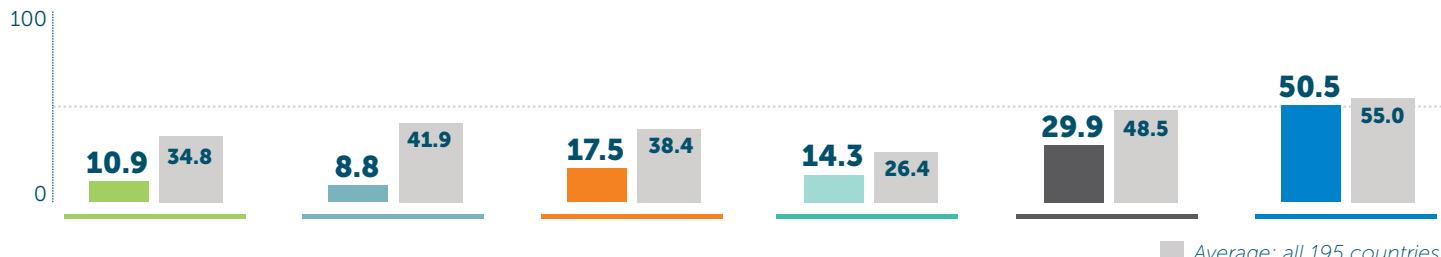
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	10.9	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	49.1	85.0
DETECTION AND REPORTING	8.8	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	16.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	17.5	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	52	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	14.3	26.4
Health capacity in clinics, hospitals and community care centers	29.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	33	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	29.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	12.5	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.5	55.0
Political and security risks	67.9	60.4
Socio-economic resilience	66.6	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	36.7	52.9
Public health vulnerabilities	62	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



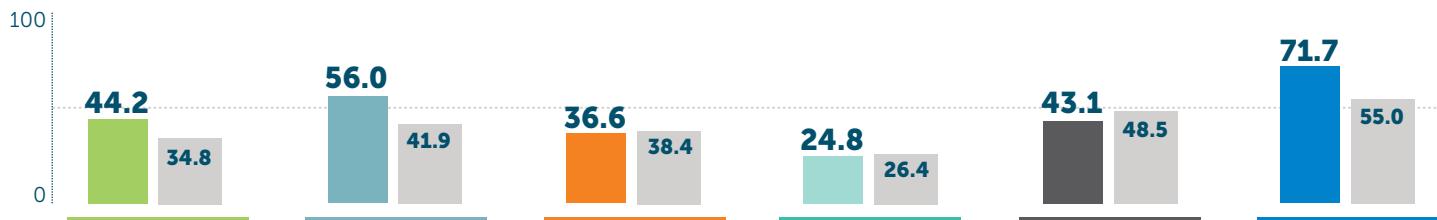
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	44.2	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	28.3	27.1
Biosecurity	0	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	56.0	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	56.7	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	36.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	90	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	24.8	26.4
Health capacity in clinics, hospitals and community care centers	5.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	46.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	43.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	71.7	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	92.5	66.1
Infrastructure adequacy	50	49.0
Environmental risks	69.8	52.9
Public health vulnerabilities	60.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



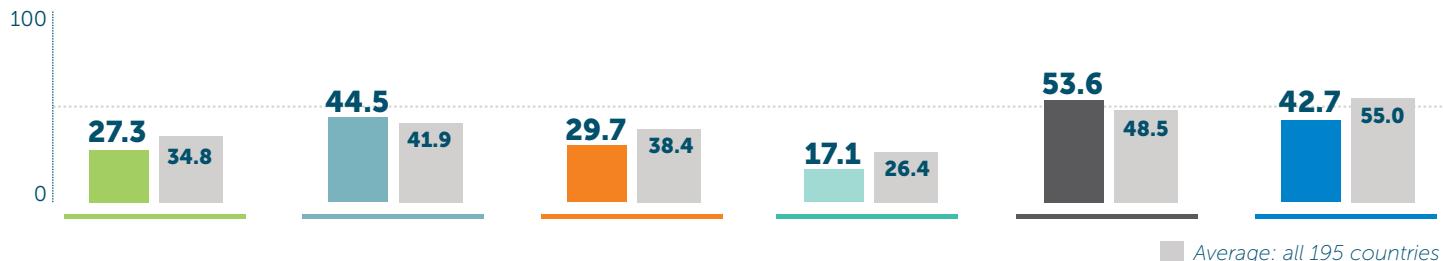
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.3	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	40.4	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93	85.0
DETECTION AND REPORTING	44.5	41.9
Laboratory systems	58.3	54.4
Real-time surveillance and reporting	61.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	29.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	69.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	17.1	26.4
Health capacity in clinics, hospitals and community care centers	1.2	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	53.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	25	53.4
JEE and PVS	75	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	42.7	55.0
Political and security risks	50	60.4
Socio-economic resilience	45.2	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	62.8	52.9
Public health vulnerabilities	16.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



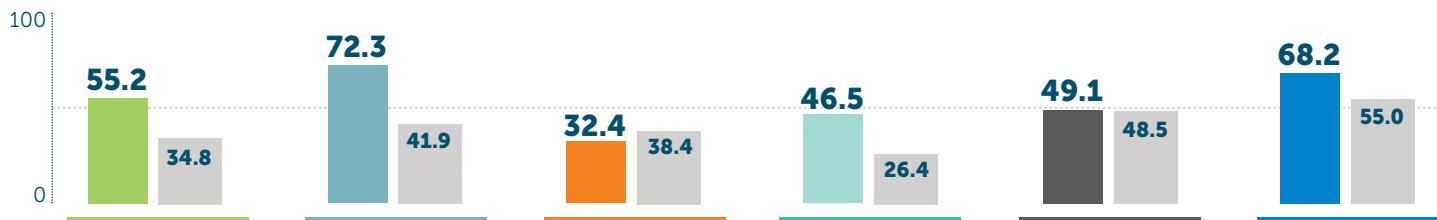
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	55.2	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	57.1	27.1
Biosecurity	44	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	91.2	85.0
DETECTION AND REPORTING	72.3	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	76.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	32.4	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	75.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	46.5	26.4
Health capacity in clinics, hospitals and community care centers	63.9	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	48.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	68.2	55.0
Political and security risks	78.6	60.4
Socio-economic resilience	67.5	66.1
Infrastructure adequacy	75	49.0
Environmental risks	52.6	52.9
Public health vulnerabilities	64.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



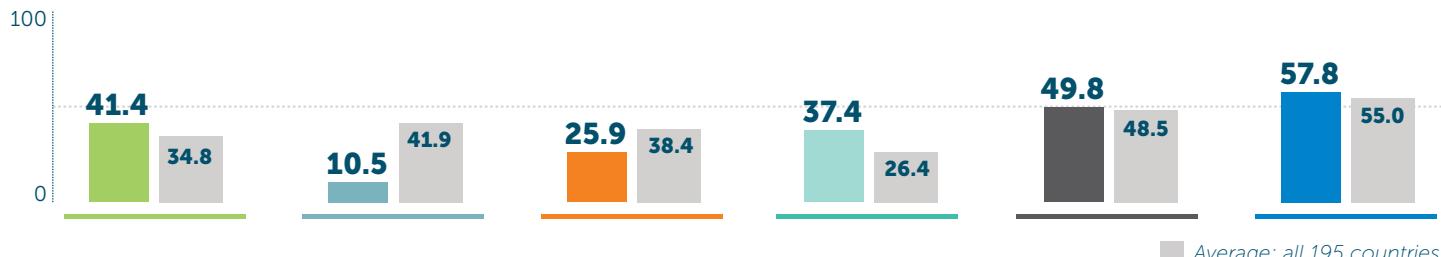
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	41.4	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	62.6	27.1
Biosecurity	8	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	10.5	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	25.9	38.4
Emergency preparedness and response planning	18.8	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	59.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	37.4	26.4
Health capacity in clinics, hospitals and community care centers	32.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	48.2	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.8	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	46.9	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	57.8	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	72.9	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	54	52.9
Public health vulnerabilities	64	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



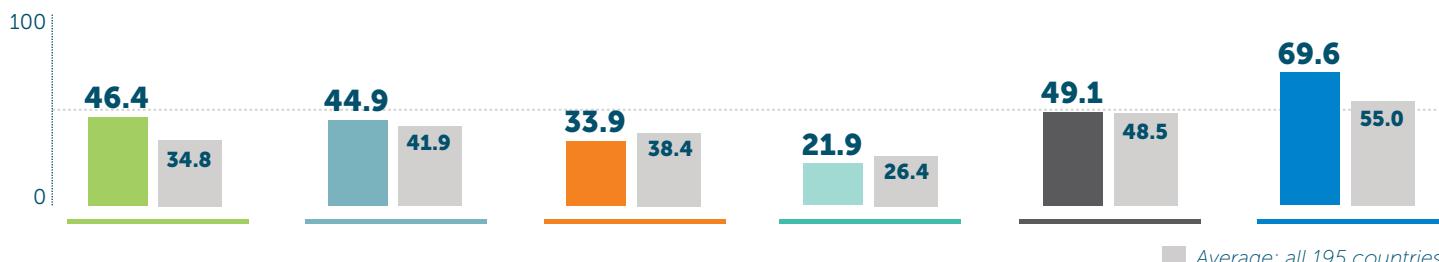
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	46.4	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	55.5	27.1
Biosecurity	40	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	44.9	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	55	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	33.9	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	87.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	21.9	26.4
Health capacity in clinics, hospitals and community care centers	31.5	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	25.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	69.6	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	88.5	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	64.9	52.9
Public health vulnerabilities	65.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



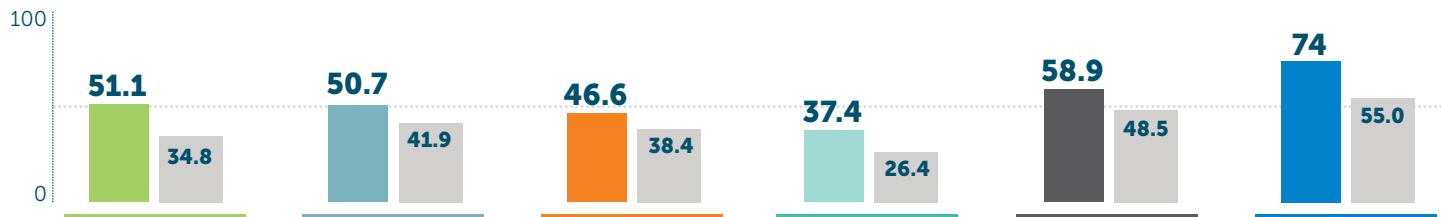
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	51.1	34.8	HEALTH SYSTEM	37.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	26.6
Zoonotic disease	53.9	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	38.7	16.0	Healthcare access	47.3
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	50.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	58.9
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	76.7	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	96.9
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0
RAPID RESPONSE	46.6	38.4	Financing	50
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	74.0
Emergency response operation	33.3	23.6	Political and security risks	82.1
Linking public health and security authorities	100	22.6	Socio-economic resilience	87.8
Risk communication	25	39.4	Infrastructure adequacy	75
Access to communications infrastructure	88.2	72.7	Environmental risks	54.4
Trade and travel restrictions	100	97.4	Public health vulnerabilities	68.2

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



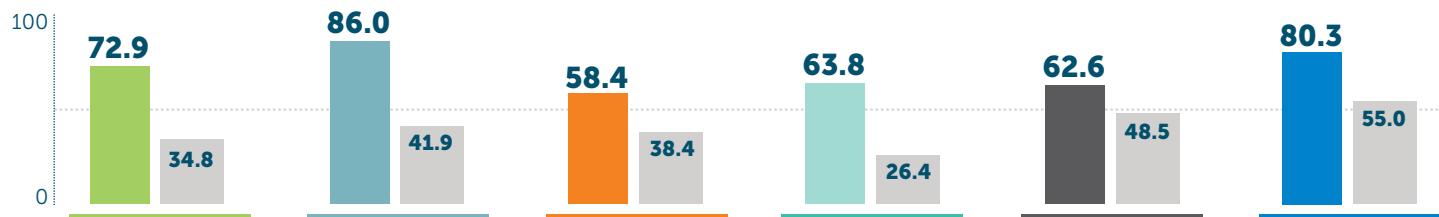
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	72.9	34.8
Antimicrobial resistance (AMR)	83.3	42.4
Zoonotic disease	55	27.1
Biosecurity	89.3	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	86.0	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	95	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	58.4	38.4
Emergency preparedness and response planning	31.3	16.9
Exercising response plans	100	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	25	39.4
Access to communications infrastructure	93.9	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	63.8	26.4
Health capacity in clinics, hospitals and community care centers	67.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	62.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	66.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	80.3	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	99.9	66.1
Infrastructure adequacy	75	49.0
Environmental risks	59.4	52.9
Public health vulnerabilities	79.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



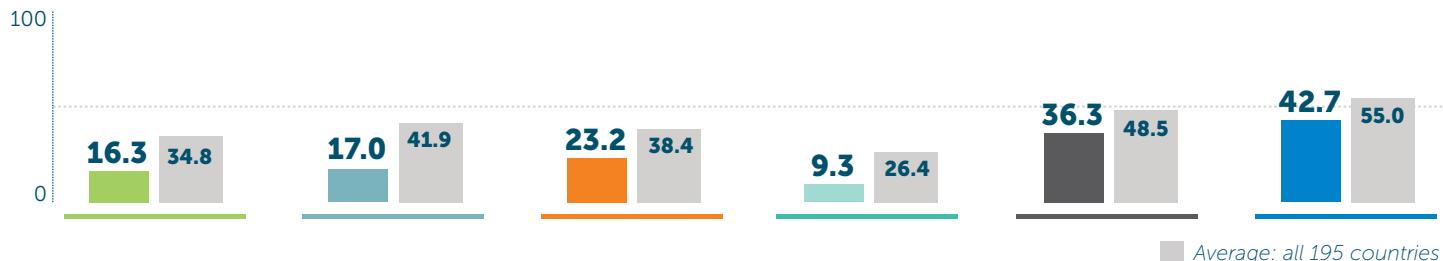
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	16.3	34.8	HEALTH SYSTEM	9.3	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	3.2	24.4
Zoonotic disease	1.3	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	30.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	82.5	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	17.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	36.3	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	0	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	15.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	23.2	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	42.7	55.0
Emergency response operation	0	23.6	Political and security risks	28.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	49.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	62.5	72.7	Environmental risks	44.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	27	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



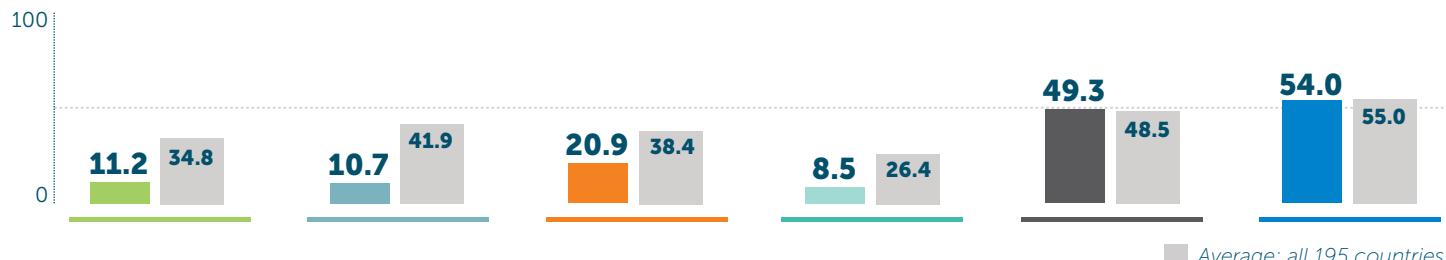
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	11.2	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	6.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	30.7	85.0
DETECTION AND REPORTING	10.7	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	20.9	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	79.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	8.5	26.4
Health capacity in clinics, hospitals and community care centers	15.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	31.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	54.0	55.0
Political and security risks	78.6	60.4
Socio-economic resilience	70.3	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	24	52.9
Public health vulnerabilities	50.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

Dominican Republic

38.3 Index Score

91/195



PREVENT



DETECT



RESPOND



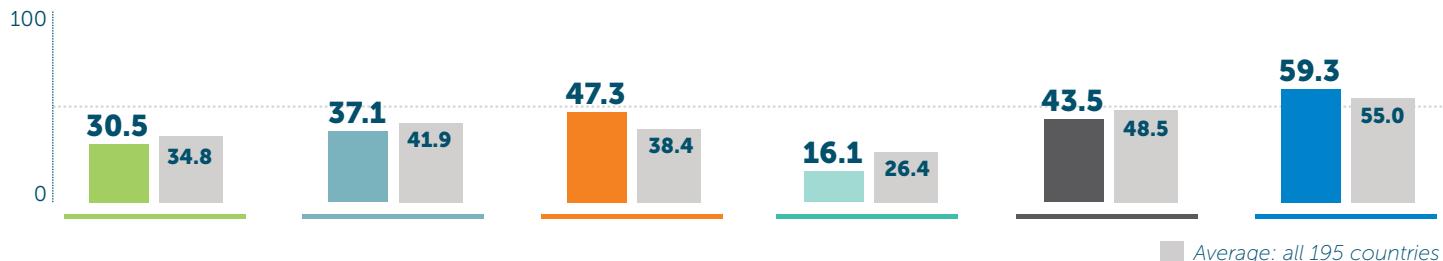
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	30.5	34.8	HEALTH SYSTEM	16.1	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	7	24.4
Zoonotic disease	21.1	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	46.9	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	88.6	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	37.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	43.5	48.5
Laboratory systems	33.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	35	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	75	42.3	International commitments	40.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	47.3	38.4	Financing	50	36.4
Emergency preparedness and response planning	50	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	59.3	55.0
Emergency response operation	33.3	23.6	Political and security risks	71.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	77.9	66.1
Risk communication	75	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	76.6	72.7	Environmental risks	46.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	49.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



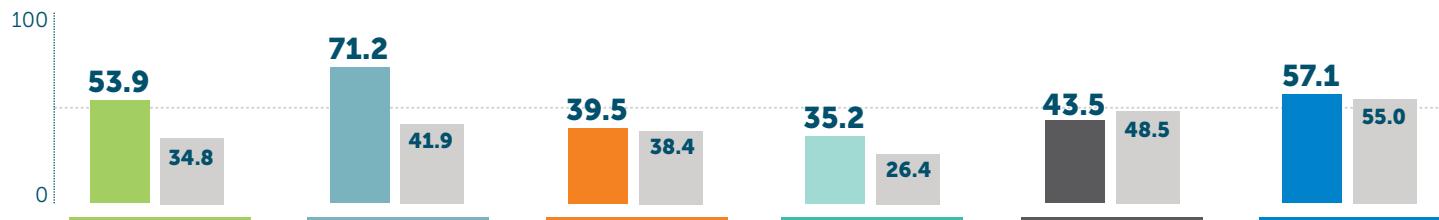
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	53.9	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	55.8	27.1
Biosecurity	4	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	84.2	85.0
DETECTION AND REPORTING	71.2	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	80	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	39.5	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	65.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	35.2	26.4
Health capacity in clinics, hospitals and community care centers	32.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	46.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	43.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	40.6	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	57.1	55.0
Political and security risks	60.7	60.4
Socio-economic resilience	69.3	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	35.5	52.9
Public health vulnerabilities	51	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



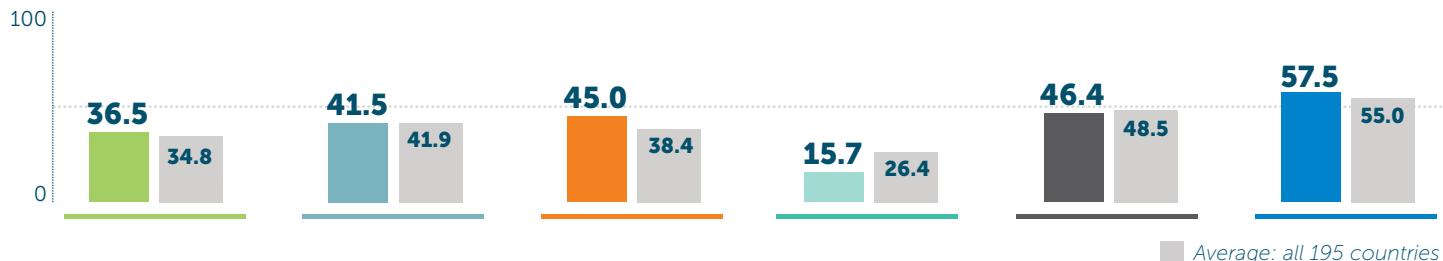
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	36.5	34.8	HEALTH SYSTEM	15.7	26.4
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	5.6	24.4
Zoonotic disease	36.2	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	4	16.0	Healthcare access	46.1	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	95.6	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	41.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	46.4	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	50	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	21.9	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	45.0	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	57.5	55.0
Emergency response operation	33.3	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	53.2	66.1
Risk communication	75	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	66	72.7	Environmental risks	57.4	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	49.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



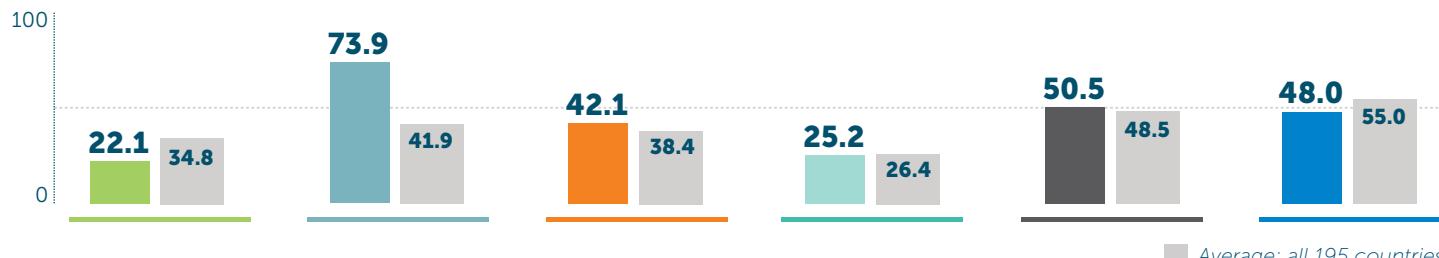
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.1	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	20.6	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	87.7	85.0
DETECTION AND REPORTING	73.9	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	75	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	42.1	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	66	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	25.2	26.4
Health capacity in clinics, hospitals and community care centers	22.6	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	50.5	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	48.0	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	57.9	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	34.4	52.9
Public health vulnerabilities	50.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



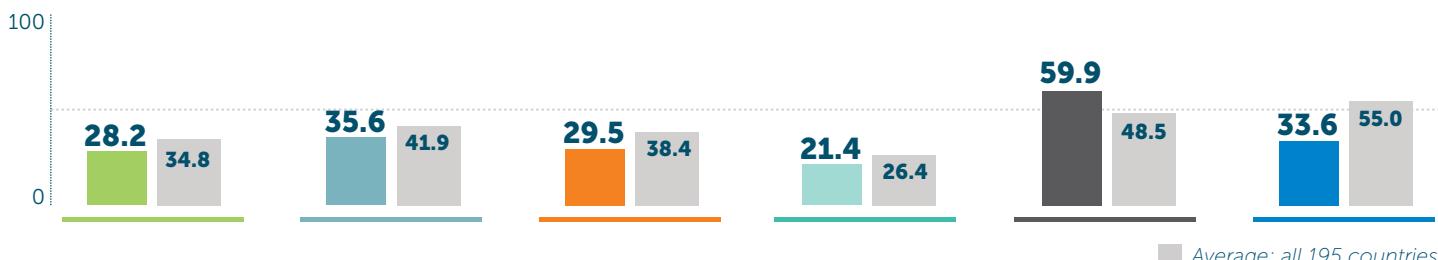
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	1.9	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	9.6	85.0
DETECTION AND REPORTING	4.4	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	17.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	52.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	5.0	26.4
Health capacity in clinics, hospitals and community care centers	4.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	23.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	33.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	43.6	55.0
Political and security risks	50	60.4
Socio-economic resilience	45.9	66.1
Infrastructure adequacy	50	49.0
Environmental risks	47.4	52.9
Public health vulnerabilities	25.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



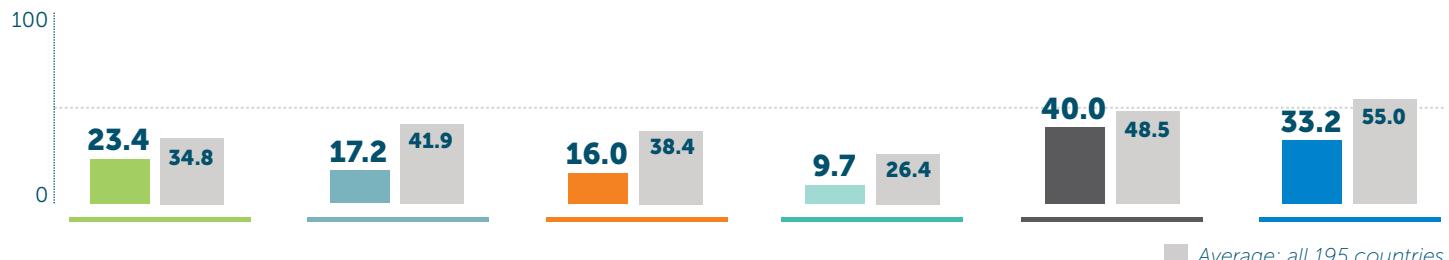
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.4	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	27.5	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	94.7	85.0
DETECTION AND REPORTING	17.2	41.9
Laboratory systems	41.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	16.0	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	39.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.7	26.4
Health capacity in clinics, hospitals and community care centers	1.6	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	21	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	40.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	12.5	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	33.2	55.0
Political and security risks	39.3	60.4
Socio-economic resilience	27.1	66.1
Infrastructure adequacy	25	49.0
Environmental risks	67.6	52.9
Public health vulnerabilities	11.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



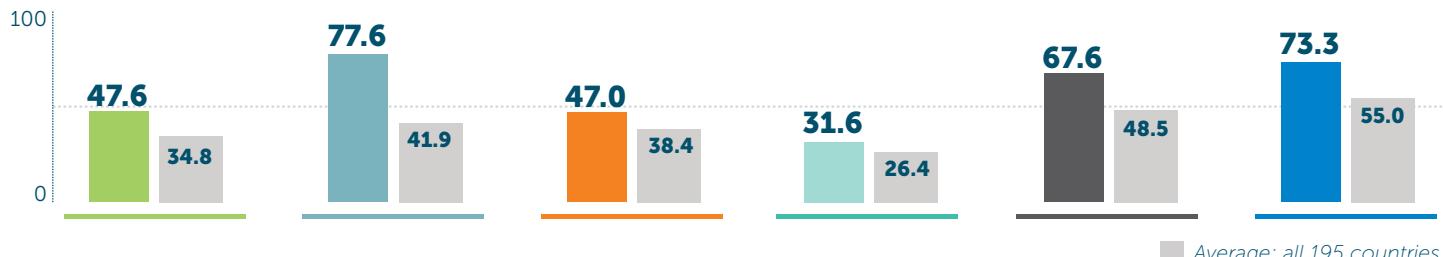
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	47.6	34.8	HEALTH SYSTEM	31.6	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	46.7	24.4
Zoonotic disease	37	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	48	16.0	Healthcare access	46.7	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	77.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	67.6	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	80	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	47.0	38.4	Financing	50	36.4
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	73.3	55.0
Emergency response operation	33.3	23.6	Political and security risks	75	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	97.7	66.1
Risk communication	75	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	90.5	72.7	Environmental risks	52.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	65.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



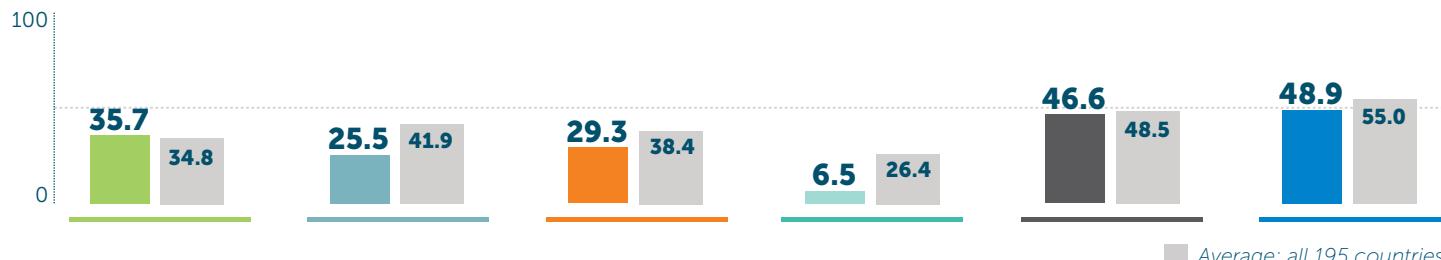
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	35.7	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	14.6	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	91.2	85.0
DETECTION AND REPORTING	25.5	41.9
Laboratory systems	58.3	54.4
Real-time surveillance and reporting	38.3	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	29.3	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	58.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	6.5	26.4
Health capacity in clinics, hospitals and community care centers	5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.6	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	15.6	53.4
JEE and PVS	75	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	48.9	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	43.9	66.1
Infrastructure adequacy	50	49.0
Environmental risks	69.4	52.9
Public health vulnerabilities	26.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



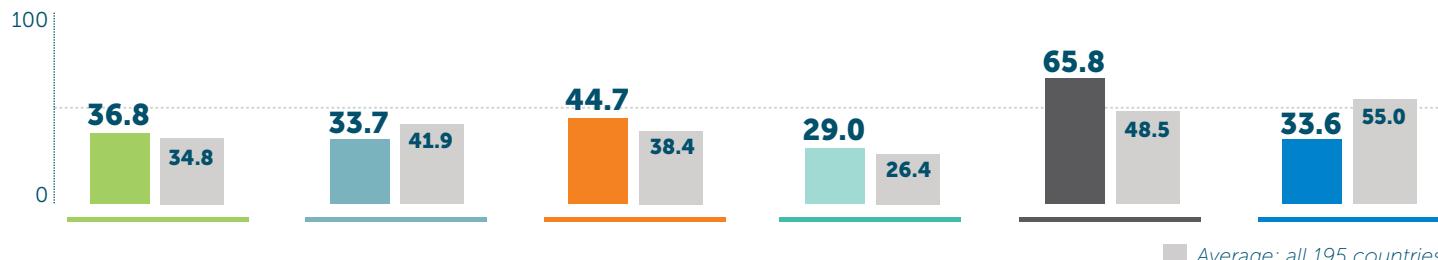
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	36.8	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	14.5	27.1
Biosecurity	24	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	33.7	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	13.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	44.7	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	51	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	29.0	26.4
Health capacity in clinics, hospitals and community care centers	42.2	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	19.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	65.8	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	81.3	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	33.6	55.0
Political and security risks	28.6	60.4
Socio-economic resilience	36.4	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	57.1	52.9
Public health vulnerabilities	8.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



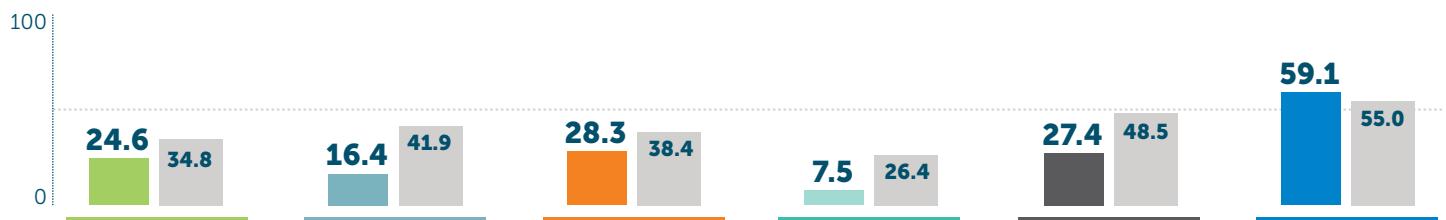
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.6	34.8	HEALTH SYSTEM	7.5	26.4
Antimicrobial resistance (AMR)	16.7	42.4	Health capacity in clinics, hospitals and community care centers	8.2	24.4
Zoonotic disease	16.2	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	32.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	16.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	27.4	48.5
Laboratory systems	33.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	5	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	25	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	28.3	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	59.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	67.7	66.1
Risk communication	0	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	78.5	72.7	Environmental risks	46.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	46.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



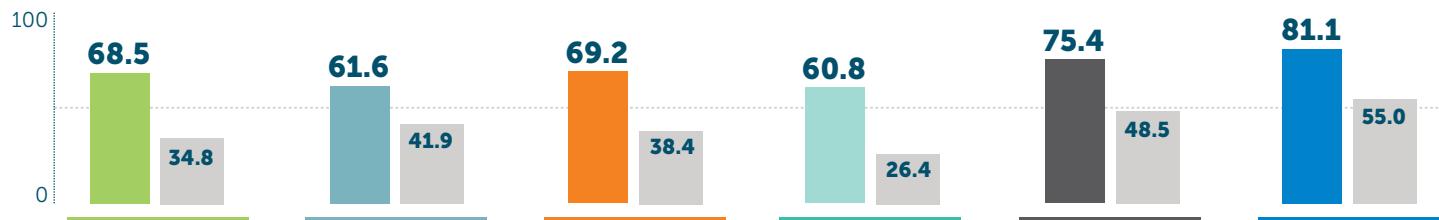
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	68.5	34.8	HEALTH SYSTEM	60.8	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	68.8	24.4
Zoonotic disease	82	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	44	16.0	Healthcare access	44	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	95.6	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	61.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	75.4	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	85	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	69.2	38.4	Financing	66.7	36.4
Emergency preparedness and response planning	100	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	81.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	99.5	66.1
Risk communication	100	39.4	Infrastructure adequacy	91.7	49.0
Access to communications infrastructure	97.3	72.7	Environmental risks	58.3	52.9
Trade and travel restrictions	50	97.4	Public health vulnerabilities	76	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



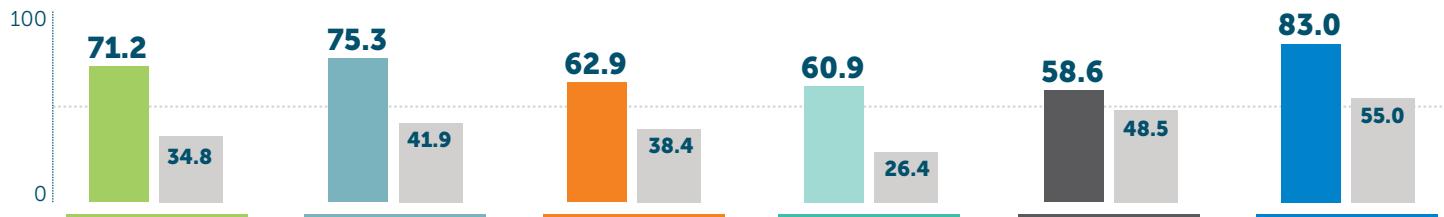
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	71.2	34.8	HEALTH SYSTEM	60.9	26.4
Antimicrobial resistance (AMR)	100	42.4	Health capacity in clinics, hospitals and community care centers	52.4	24.4
Zoonotic disease	71	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	52	16.0	Healthcare access	46.2	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	75.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	58.6	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	71.7	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	62.9	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	18.8	16.9	Commitment to sharing of genetic & biological data & specimens	100	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	83.0	55.0
Emergency response operation	33.3	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	88.9	66.1
Risk communication	75	39.4	Infrastructure adequacy	100	49.0
Access to communications infrastructure	85.1	72.7	Environmental risks	63.4	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	78.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



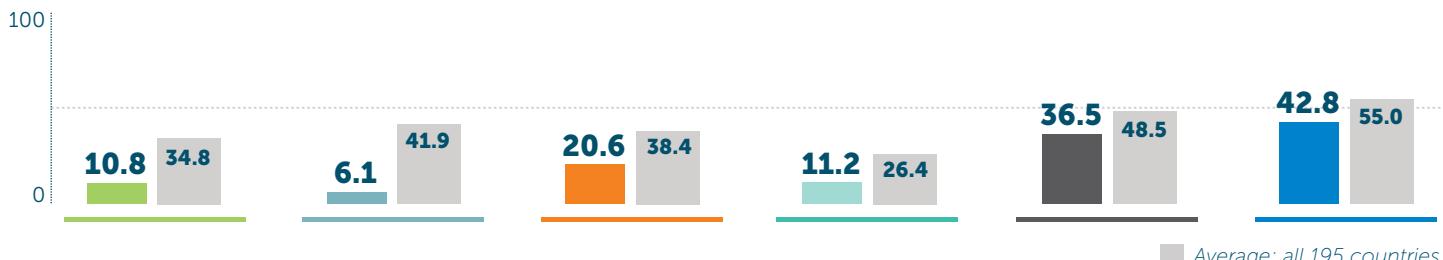
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	10.8	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	6.7	27.1
Biosecurity	4	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	18.4	85.0
DETECTION AND REPORTING	6.1	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	20.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	77.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	11.2	26.4
Health capacity in clinics, hospitals and community care centers	14.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	36.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	37.5	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	42.8	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	52.6	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	48	52.9
Public health vulnerabilities	31.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



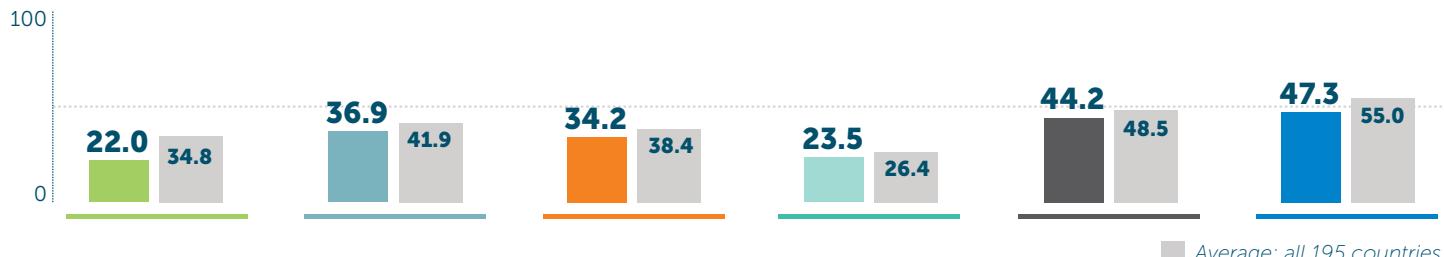
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	22.0	34.8	HEALTH SYSTEM	23.5	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	20	24.4
Zoonotic disease	14.9	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	25.3	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	36.9	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	44.2	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	15.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	34.2	38.4	Financing	50	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	47.3	55.0
Emergency response operation	33.3	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	49.3	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	74.3	72.7	Environmental risks	70.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	25.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



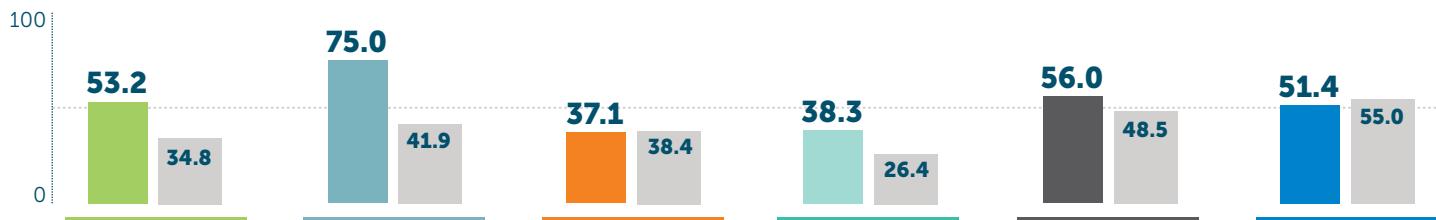
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	53.2	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	32.8	27.1
Biosecurity	52	16.0
Biosafety	75	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	75.0	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	46.7	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	37.1	38.4
Emergency preparedness and response planning	18.8	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	79	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	38.3	26.4
Health capacity in clinics, hospitals and community care centers	18.3	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	96.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	56.0	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	96.9	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	51.4	55.0
Political and security risks	42.9	60.4
Socio-economic resilience	71.6	66.1
Infrastructure adequacy	50	49.0
Environmental risks	44.2	52.9
Public health vulnerabilities	49.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



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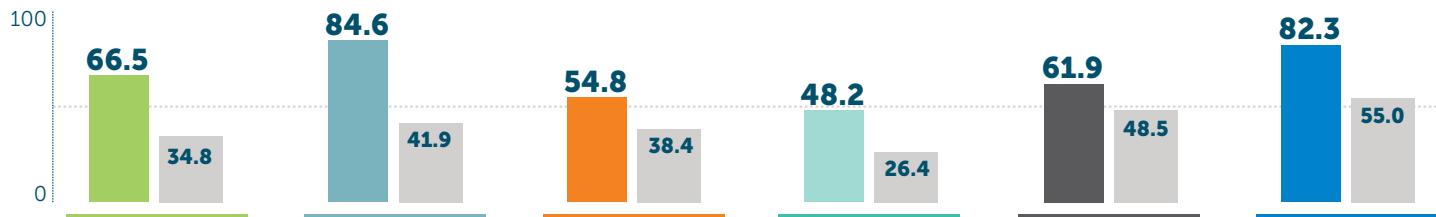
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	66.5	34.8	HEALTH SYSTEM	48.2
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	77.1
Zoonotic disease	54.9	27.1	Medical countermeasures and personnel deployment	66.7
Biosecurity	74.7	16.0	Healthcare access	44.9
Biosafety	75	22.8	Communications with healthcare workers during a public health emergency	0
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	50
DETECTION AND REPORTING	84.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	61.9
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	90	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0
RAPID RESPONSE	54.8	38.4	Financing	33.3
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	100
Exercising response plans	50	16.2	RISK ENVIRONMENT	82.3
Emergency response operation	33.3	23.6	Political and security risks	85.7
Linking public health and security authorities	0	22.6	Socio-economic resilience	99.1
Risk communication	100	39.4	Infrastructure adequacy	83.3
Access to communications infrastructure	94.1	72.7	Environmental risks	60.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	80.6

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



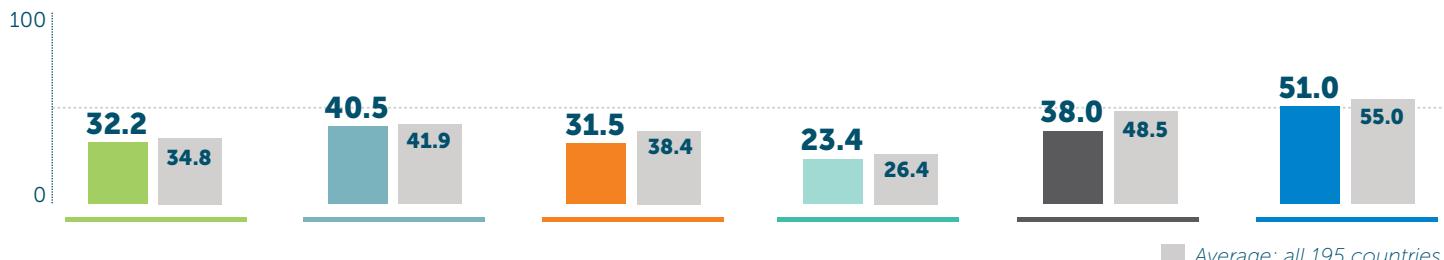
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	32.2	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	40.5	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	55	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	31.5	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	65.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	23.4	26.4
Health capacity in clinics, hospitals and community care centers	2.3	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	38.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	51.0	55.0
Political and security risks	71.4	60.4
Socio-economic resilience	58.3	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	63.1	52.9
Public health vulnerabilities	21.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



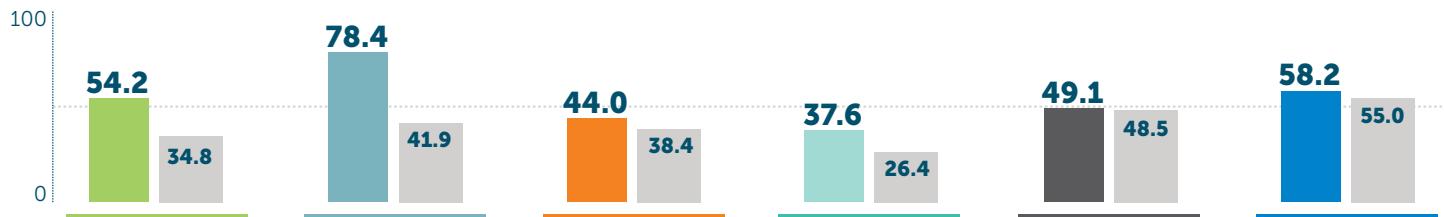
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	54.2	34.8	HEALTH SYSTEM	37.6	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	49.2	24.4
Zoonotic disease	21.4	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	44	16.0	Healthcare access	44.3	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	78.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	49.1	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	66.7	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	44.0	38.4	Financing	0	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	58.2	55.0
Emergency response operation	33.3	23.6	Political and security risks	71.4	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	66.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	82.8	72.7	Environmental risks	31.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	67	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



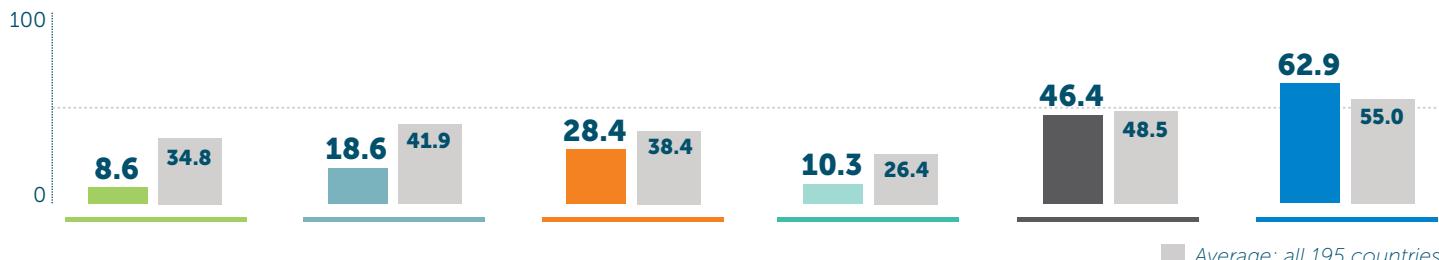
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	8.6	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	6.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	37.7	85.0
DETECTION AND REPORTING	18.6	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	13.3	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	28.4	38.4
Emergency preparedness and response planning	50	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	76.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	10.3	26.4
Health capacity in clinics, hospitals and community care centers	27.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	62.9	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	71.4	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	43.2	52.9
Public health vulnerabilities	47.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



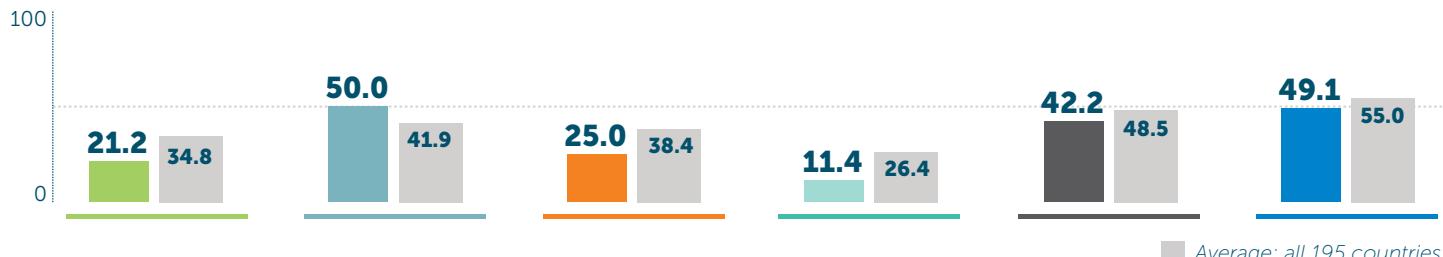
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	21.2	34.8	HEALTH SYSTEM	11.4	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	3.5	24.4
Zoonotic disease	14.2	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	41.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	88.6	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	50.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	42.2	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	31.3	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	25.0	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	49.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	46.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	52.5	66.1
Risk communication	0	39.4	Infrastructure adequacy	41.7	49.0
Access to communications infrastructure	67.8	72.7	Environmental risks	64.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	43.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



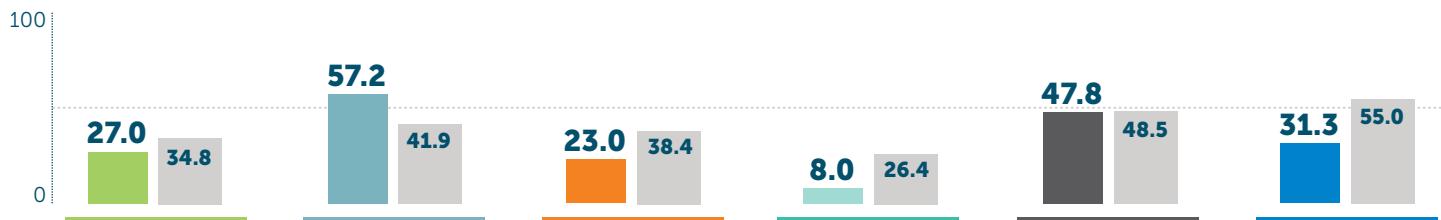
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.0	34.8	HEALTH SYSTEM	8.0	26.4
Antimicrobial resistance (AMR)	33.3	42.4	Health capacity in clinics, hospitals and community care centers	0.7	24.4
Zoonotic disease	40.6	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	4	16.0	Healthcare access	42.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	70.2	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	57.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	47.8	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	36.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	12.5	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	23.0	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	31.3	55.0
Emergency response operation	33.3	23.6	Political and security risks	53.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	23.1	66.1
Risk communication	0	39.4	Infrastructure adequacy	0	49.0
Access to communications infrastructure	51.7	72.7	Environmental risks	65.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	16.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



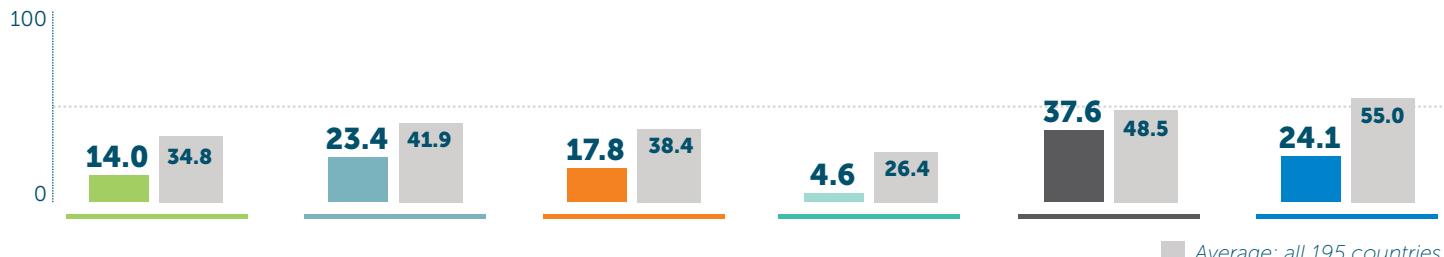
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	14.0	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	0.5	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	71.1	85.0
DETECTION AND REPORTING	23.4	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	17.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	54.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	4.6	26.4
Health capacity in clinics, hospitals and community care centers	2.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	23	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	37.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	24.1	55.0
Political and security risks	28.6	60.4
Socio-economic resilience	36.3	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	34.4	52.9
Public health vulnerabilities	14.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



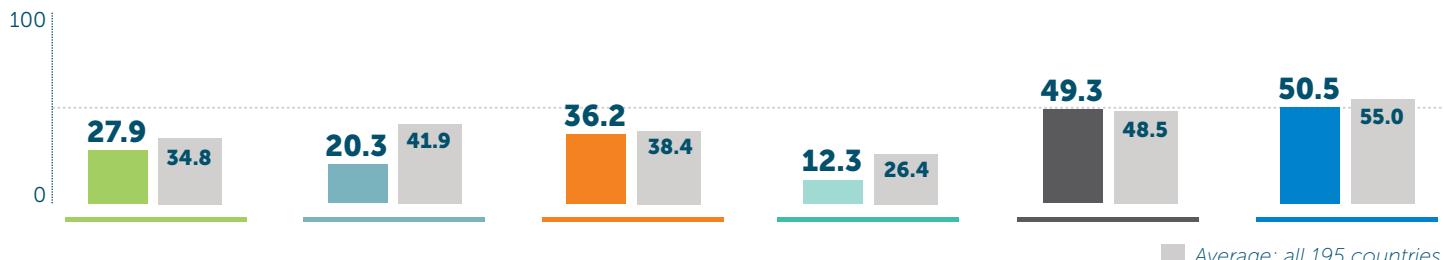
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.9	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	1.6	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	20.3	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	3.3	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	36.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	66.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.3	26.4
Health capacity in clinics, hospitals and community care centers	3.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	29.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.5	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	64.1	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	46.2	52.9
Public health vulnerabilities	43.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



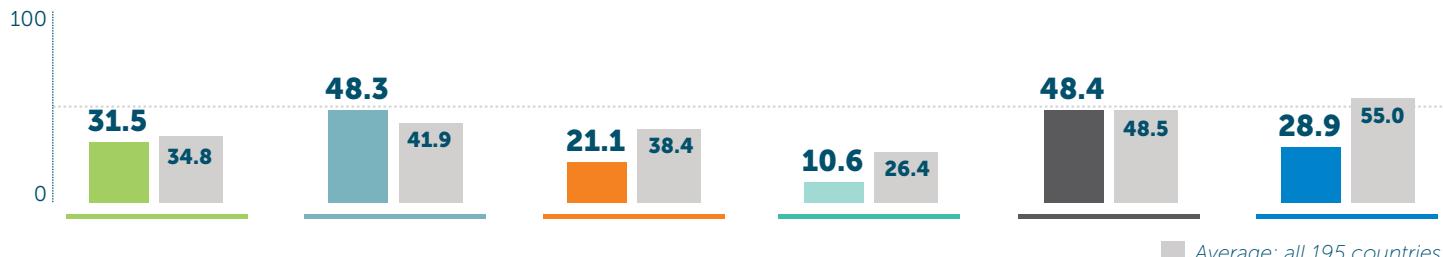
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.5	34.8	HEALTH SYSTEM	10.6	26.4
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	1.6	24.4
Zoonotic disease	41.8	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	39	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	68.4	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	48.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	48.4	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	36.7	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	100	42.3	International commitments	18.8	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	21.1	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	28.9	55.0
Emergency response operation	0	23.6	Political and security risks	50	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	38.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	0	49.0
Access to communications infrastructure	44.9	72.7	Environmental risks	35.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	19.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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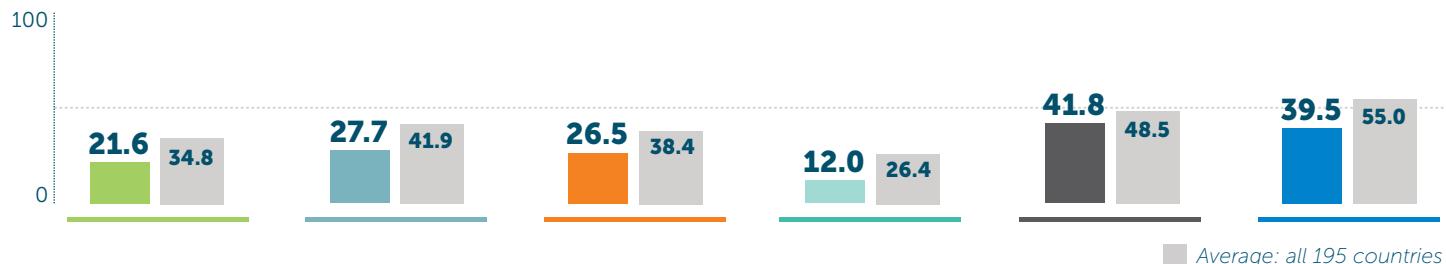
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	21.6	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	4.8	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	27.7	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	26.5	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	63.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.0	26.4
Health capacity in clinics, hospitals and community care centers	2.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	45.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	41.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	39.5	55.0
Political and security risks	46.4	60.4
Socio-economic resilience	63.4	66.1
Infrastructure adequacy	25	49.0
Environmental risks	16.6	52.9
Public health vulnerabilities	44	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



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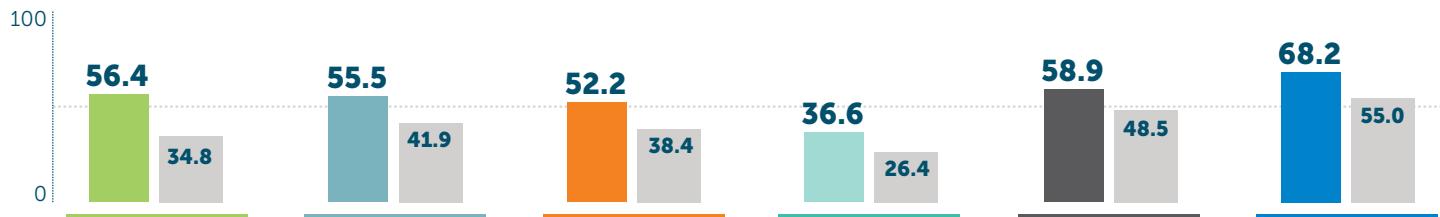
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.4	34.8	HEALTH SYSTEM	36.6
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	41.4
Zoonotic disease	42.2	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	65.3	16.0	Healthcare access	45.7
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50
DETECTION AND REPORTING	55.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	58.9
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	78.3	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	96.9
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0
RAPID RESPONSE	52.2	38.4	Financing	50
Emergency preparedness and response planning	6.3	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	50	16.2	RISK ENVIRONMENT	68.2
Emergency response operation	33.3	23.6	Political and security risks	78.6
Linking public health and security authorities	100	22.6	Socio-economic resilience	74.1
Risk communication	25	39.4	Infrastructure adequacy	75
Access to communications infrastructure	86	72.7	Environmental risks	47.7
Trade and travel restrictions	100	97.4	Public health vulnerabilities	62.3

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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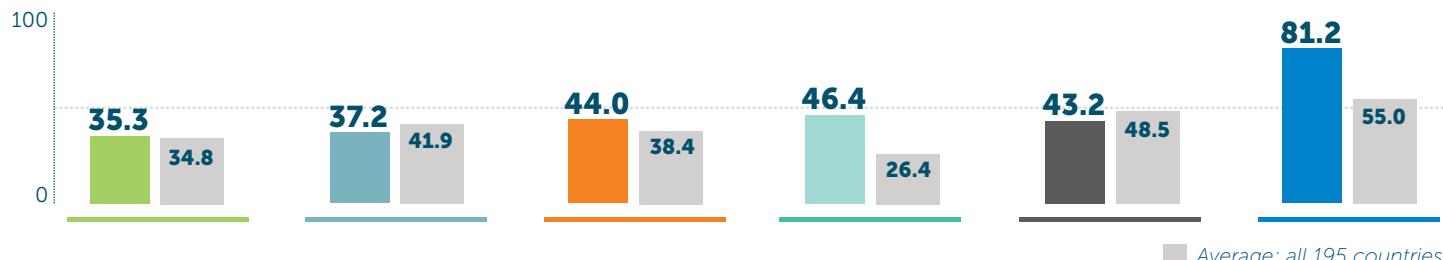
HEALTH



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RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	35.3	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	42.6	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	37.2	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	50	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	44.0	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	98.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	46.4	26.4
Health capacity in clinics, hospitals and community care centers	51.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.5	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	43.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	81.3	53.4
JEE and PVS	25	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	81.2	55.0
Political and security risks	96.4	60.4
Socio-economic resilience	89.4	66.1
Infrastructure adequacy	83.3	49.0
Environmental risks	54.8	52.9
Public health vulnerabilities	77.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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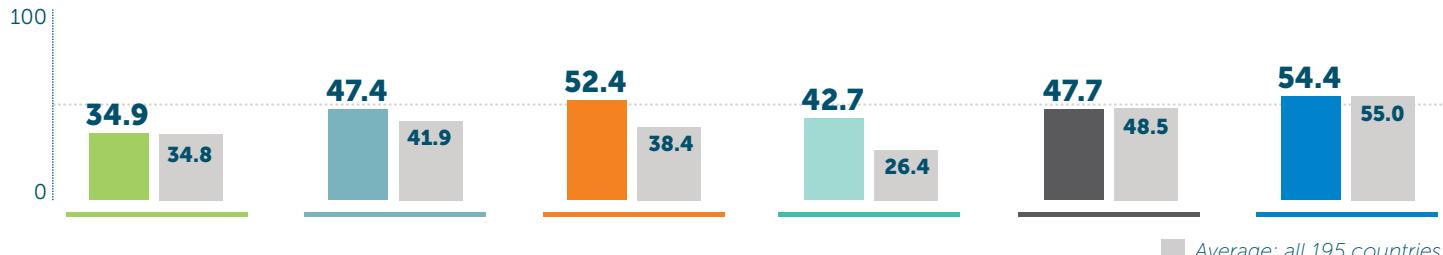
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	34.9	34.8	HEALTH SYSTEM	42.7	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	29.4	24.4
Zoonotic disease	27.8	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	24	16.0	Healthcare access	29.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	47.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	47.7	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	48.3	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	52.4	38.4	Financing	50	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	100	16.2	RISK ENVIRONMENT	54.4	55.0
Emergency response operation	33.3	23.6	Political and security risks	67.9	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	77.7	66.1
Risk communication	75	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	54.3	72.7	Environmental risks	62.5	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	32.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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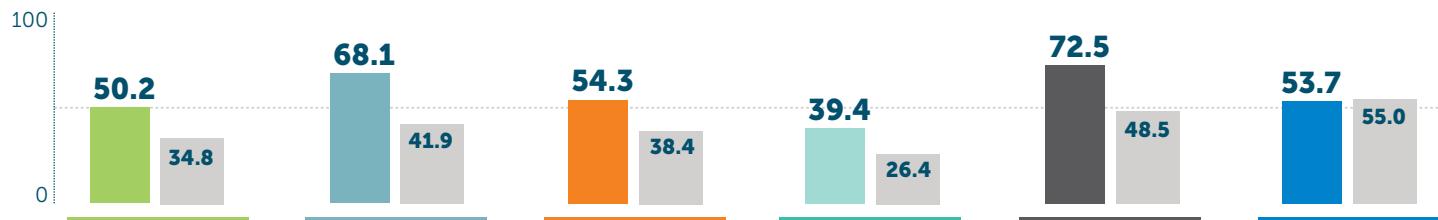
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	50.2	34.8	HEALTH SYSTEM	39.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	28.4
Zoonotic disease	60.3	27.1	Medical countermeasures and personnel deployment	66.7
Biosecurity	8	16.0	Healthcare access	47.7
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	50
DETECTION AND REPORTING	68.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	72.5
Laboratory systems	91.7	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	36.7	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	78.1
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25
RAPID RESPONSE	54.3	38.4	Financing	66.7
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	53.7
Emergency response operation	33.3	23.6	Political and security risks	64.3
Linking public health and security authorities	100	22.6	Socio-economic resilience	77.9
Risk communication	75	39.4	Infrastructure adequacy	41.7
Access to communications infrastructure	78.7	72.7	Environmental risks	46.2
Trade and travel restrictions	100	97.4	Public health vulnerabilities	38.7

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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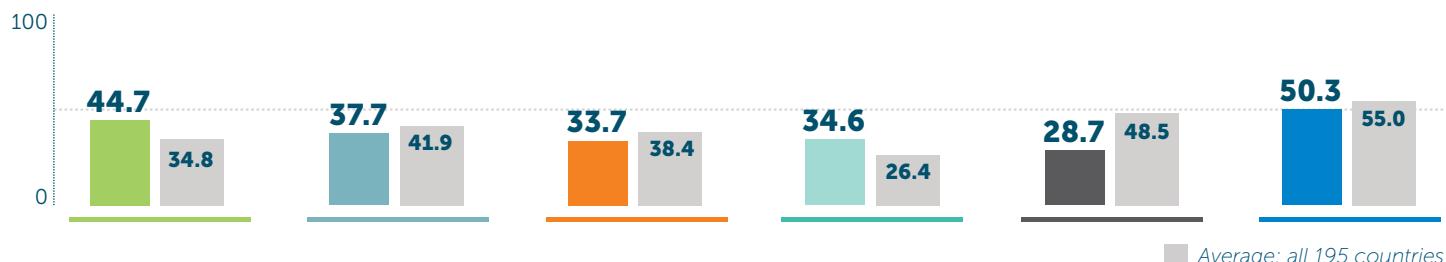
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	44.7	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	21.7	27.1
Biosecurity	24	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	37.7	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	28.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	33.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	83.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	34.6	26.4
Health capacity in clinics, hospitals and community care centers	32	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	45.5	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	28.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	37.5	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.3	55.0
Political and security risks	35.7	60.4
Socio-economic resilience	75.7	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	45.3	52.9
Public health vulnerabilities	55.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



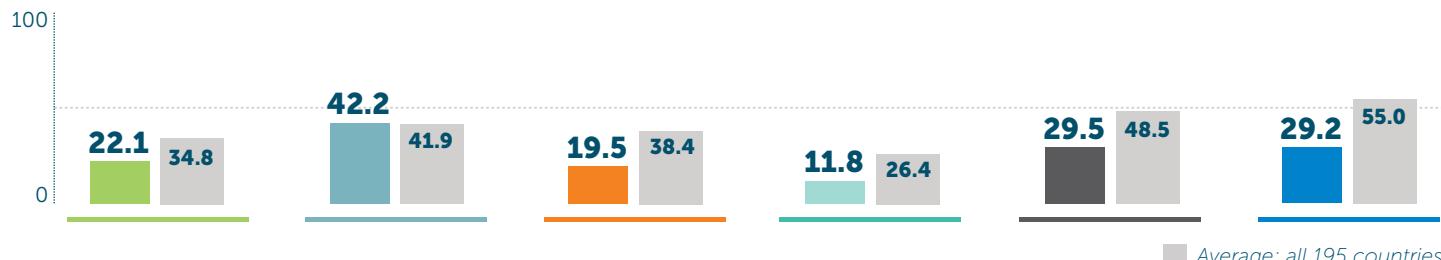
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.1	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	20.4	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	87.7	85.0
DETECTION AND REPORTING	42.2	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	36.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	19.5	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	68.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	11.8	26.4
Health capacity in clinics, hospitals and community care centers	5.6	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	41.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	29.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	43.8	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	29.2	55.0
Political and security risks	7.1	60.4
Socio-economic resilience	53.6	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	38.6	52.9
Public health vulnerabilities	42.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



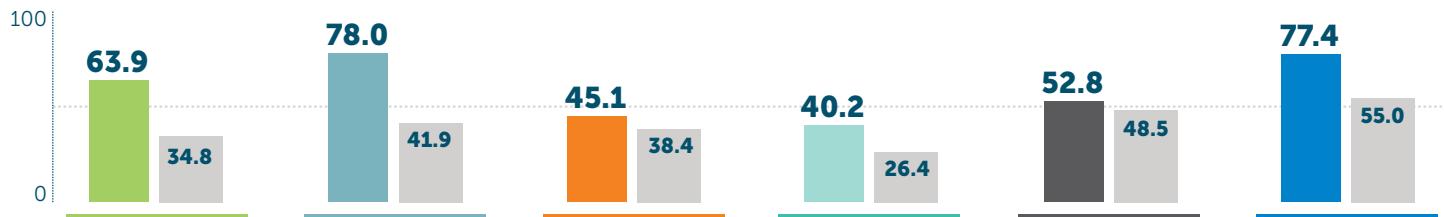
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	63.9	34.8	HEALTH SYSTEM	40.2	26.4
Antimicrobial resistance (AMR)	100	42.4	Health capacity in clinics, hospitals and community care centers	63.2	24.4
Zoonotic disease	77	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	48	16.0	Healthcare access	28.3	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	93.9	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	78.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	81.7	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	45.1	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	77.4	55.0
Emergency response operation	33.3	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	88.1	66.1
Risk communication	75	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	90.9	72.7	Environmental risks	67.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	76.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



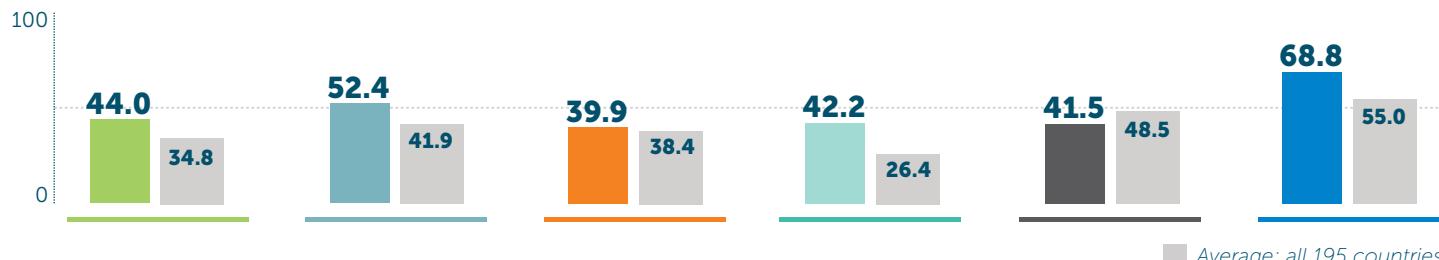
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	44.0	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	34.2	27.1
Biosecurity	32	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	52.4	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	66.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	39.9	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	100	22.6
Risk communication	25	39.4
Access to communications infrastructure	95.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	42.2	26.4
Health capacity in clinics, hospitals and community care centers	42.5	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	45.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	41.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	68.8	53.4
JEE and PVS	25	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	68.8	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	88.3	66.1
Infrastructure adequacy	75	49.0
Environmental risks	56.2	52.9
Public health vulnerabilities	68.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



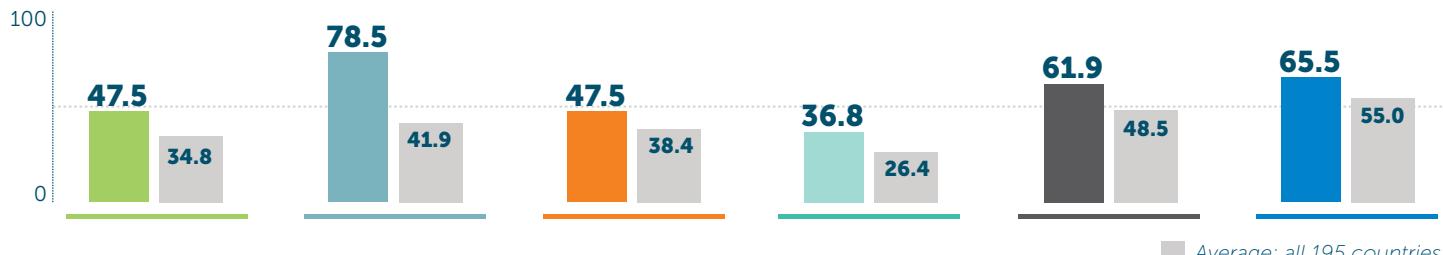
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	47.5	34.8	HEALTH SYSTEM	36.8	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	44.5	24.4
Zoonotic disease	29	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	24	16.0	Healthcare access	44.3	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	93.9	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	78.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	61.9	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	83.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	47.5	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	18.8	16.9	Commitment to sharing of genetic & biological data & specimens	100	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	65.5	55.0
Emergency response operation	0	23.6	Political and security risks	67.9	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	67.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	77.5	72.7	Environmental risks	58.5	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	73.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



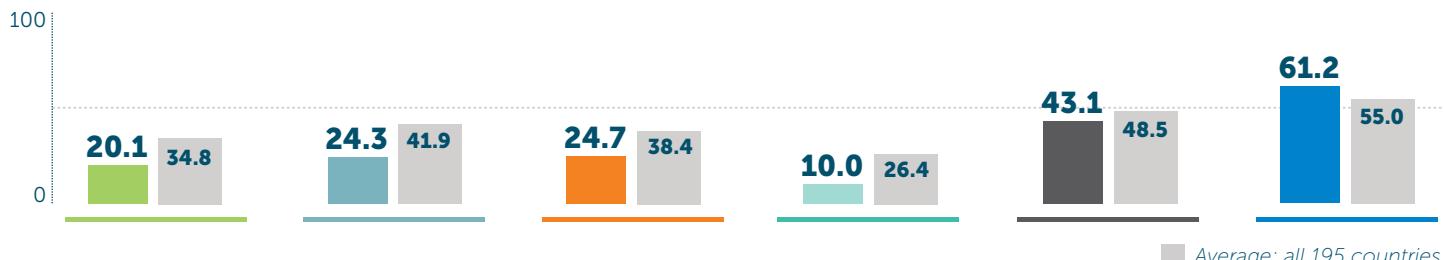
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	20.1	34.8	HEALTH SYSTEM	10.0	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	5.2	24.4
Zoonotic disease	7	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	32.3	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	96.5	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	24.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	43.1	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	18.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	25	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	24.7	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	61.2	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	77.4	66.1
Risk communication	25	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	74.6	72.7	Environmental risks	43.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	50.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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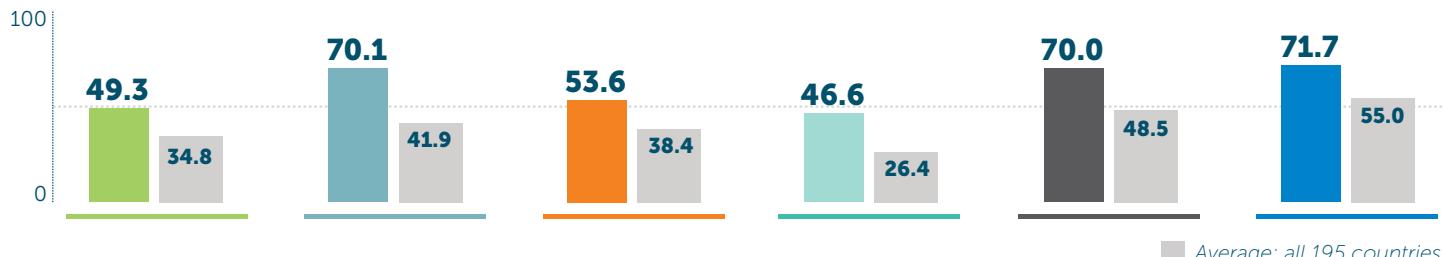
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	49.3	34.8	HEALTH SYSTEM	46.6	26.4
Antimicrobial resistance (AMR)	91.7	42.4	Health capacity in clinics, hospitals and community care centers	63.6	24.4
Zoonotic disease	28	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	12	16.0	Healthcare access	45.6	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	100	42.2
DETECTION AND REPORTING	70.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	70.0	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	68.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	53.6	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	100	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	71.7	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	78.3	66.1
Risk communication	75	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	86.7	72.7	Environmental risks	38.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	79.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



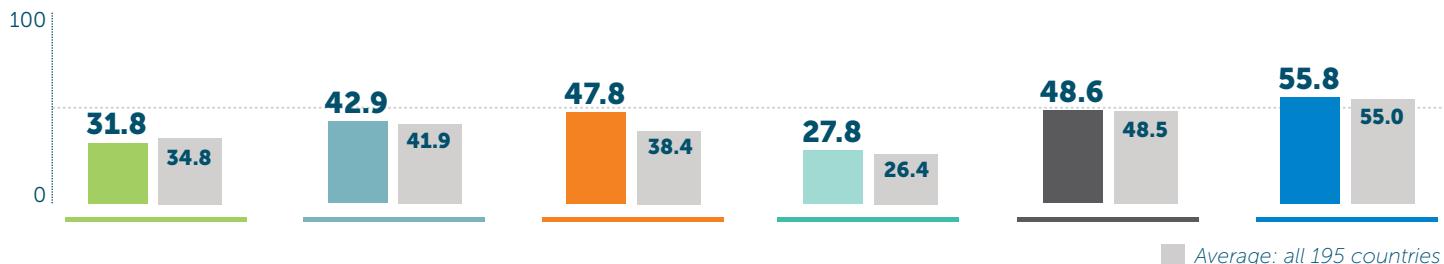
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.8	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	14.5	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	94.7	85.0
DETECTION AND REPORTING	42.9	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	16.7	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	47.8	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	82.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	27.8	26.4
Health capacity in clinics, hospitals and community care centers	37.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	48.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	96.9	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	55.8	55.0
Political and security risks	50	60.4
Socio-economic resilience	68.9	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	47.4	52.9
Public health vulnerabilities	54.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



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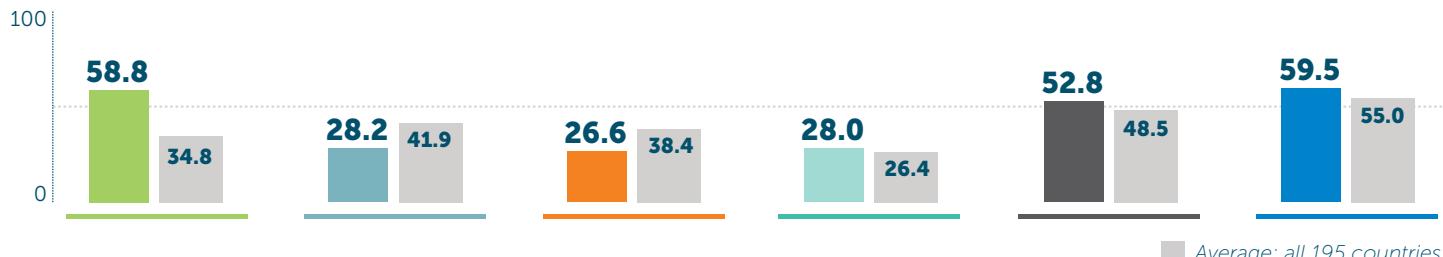
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	58.8	34.8	HEALTH SYSTEM	28.0	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	42.8	24.4
Zoonotic disease	59.1	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	20	16.0	Healthcare access	47.7	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	28.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	65	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	93.8	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	26.6	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	59.5	55.0
Emergency response operation	0	23.6	Political and security risks	53.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	66	66.1
Risk communication	0	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	94.5	72.7	Environmental risks	60.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	52.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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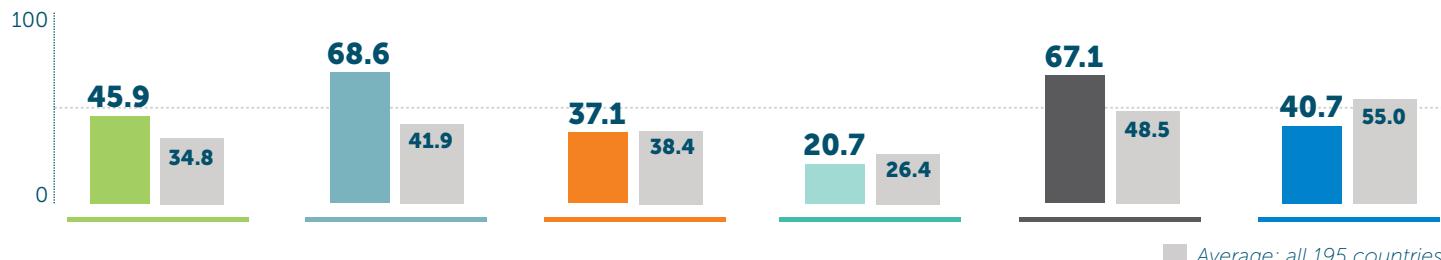
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	45.9	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	54.6	27.1
Biosecurity	20	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	72.8	85.0
DETECTION AND REPORTING	68.6	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	80	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	37.1	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	58.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	20.7	26.4
Health capacity in clinics, hospitals and community care centers	20.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	42.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	67.1	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	90.6	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	40.7	55.0
Political and security risks	50	60.4
Socio-economic resilience	55.8	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	73	52.9
Public health vulnerabilities	21.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



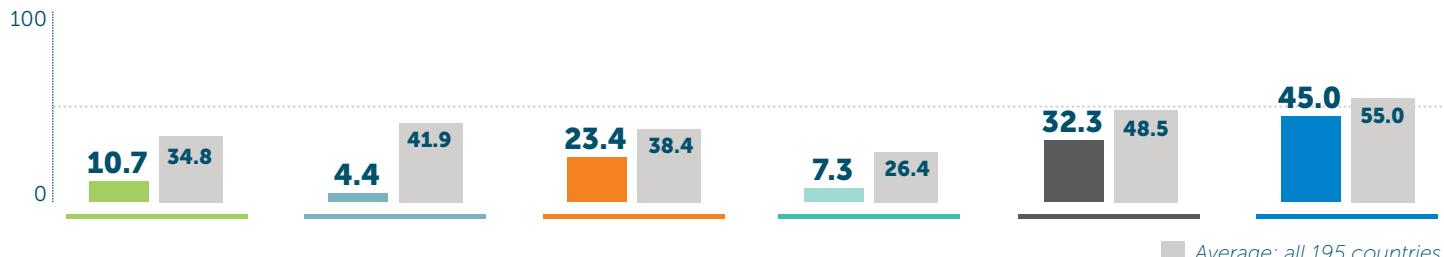
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	10.7	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	34.2	85.0
DETECTION AND REPORTING	4.4	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	23.4	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	54.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	7.3	26.4
Health capacity in clinics, hospitals and community care centers	7.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	33	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	32.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	15.6	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	45.0	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	60.7	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	36.7	52.9
Public health vulnerabilities	21.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



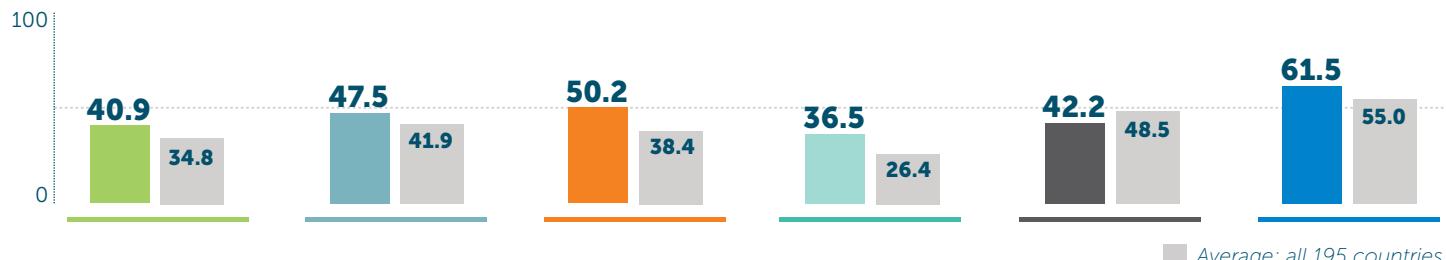
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	40.9	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	40.9	27.1
Biosecurity	4	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	47.5	41.9
Laboratory systems	75	54.4
Real-time surveillance and reporting	23.3	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	50.2	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	75	39.4
Access to communications infrastructure	98.7	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	36.5	26.4
Health capacity in clinics, hospitals and community care centers	39.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	46.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	42.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	61.5	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	73.1	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	52.3	52.9
Public health vulnerabilities	66.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



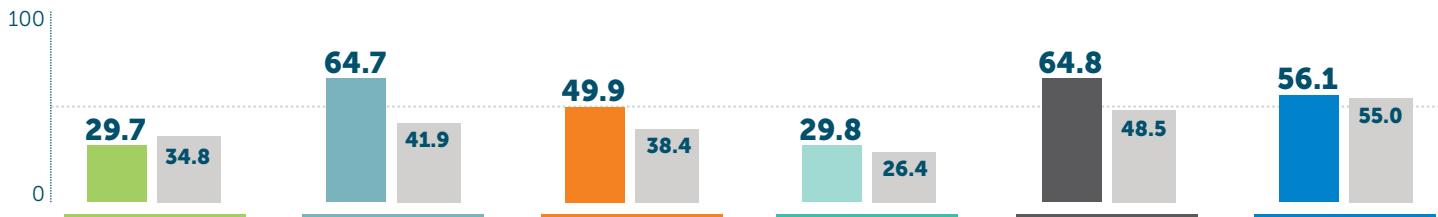
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	29.7	34.8	HEALTH SYSTEM	29.8	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	17.2	24.4
Zoonotic disease	35.3	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	20	16.0	Healthcare access	48.7	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	96.5	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	64.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	64.8	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	48.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	43.8	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	75	17.7
RAPID RESPONSE	49.9	38.4	Financing	50	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	100	16.2	RISK ENVIRONMENT	56.1	55.0
Emergency response operation	0	23.6	Political and security risks	57.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	70.8	66.1
Risk communication	100	39.4	Infrastructure adequacy	41.7	49.0
Access to communications infrastructure	73	72.7	Environmental risks	66.4	52.9
Trade and travel restrictions	50	97.4	Public health vulnerabilities	47.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



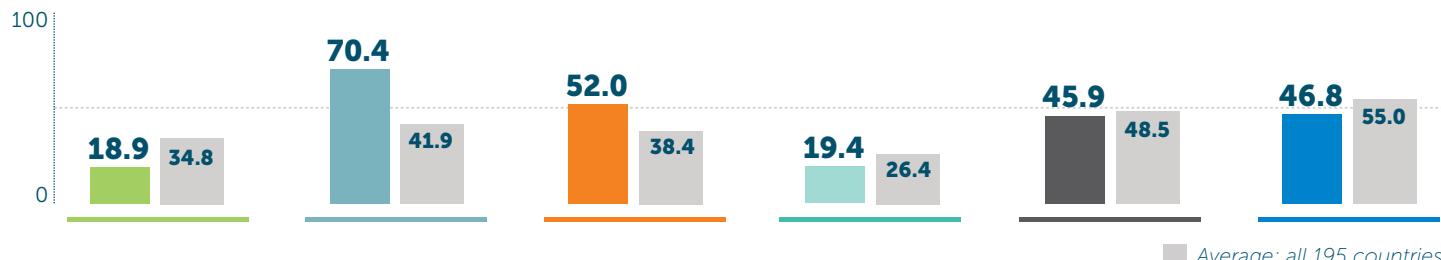
HEALTH



NORMS



RISK

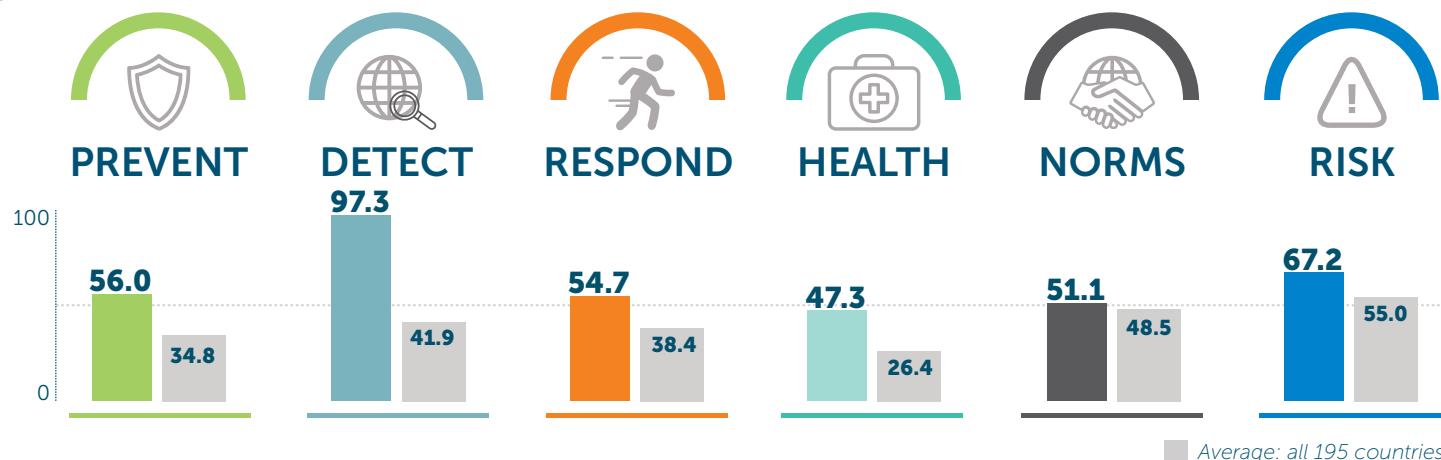


	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	18.9	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	9	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	85.1	85.0
DETECTION AND REPORTING	70.4	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	38.3	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	52.0	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	100	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	59.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	19.4	26.4
Health capacity in clinics, hospitals and community care centers	21	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	38.5	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	45.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	46.8	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	52.8	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	58.4	52.9
Public health vulnerabilities	33.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.0	34.8	HEALTH SYSTEM	47.3
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	38.1
Zoonotic disease	51.1	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	48	16.0	Healthcare access	44.9
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	97.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	51.1
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	90	39.1	Cross-border agreements on public and animal health emergency response	50
Epidemiology workforce	100	42.3	International commitments	96.9
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25
RAPID RESPONSE	54.7	38.4	Financing	0
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	100
Exercising response plans	0	16.2	RISK ENVIRONMENT	67.2
Emergency response operation	0	23.6	Political and security risks	67.9
Linking public health and security authorities	100	22.6	Socio-economic resilience	85.8
Risk communication	75	39.4	Infrastructure adequacy	66.7
Access to communications infrastructure	94.9	72.7	Environmental risks	57.5
Trade and travel restrictions	100	97.4	Public health vulnerabilities	58.5

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



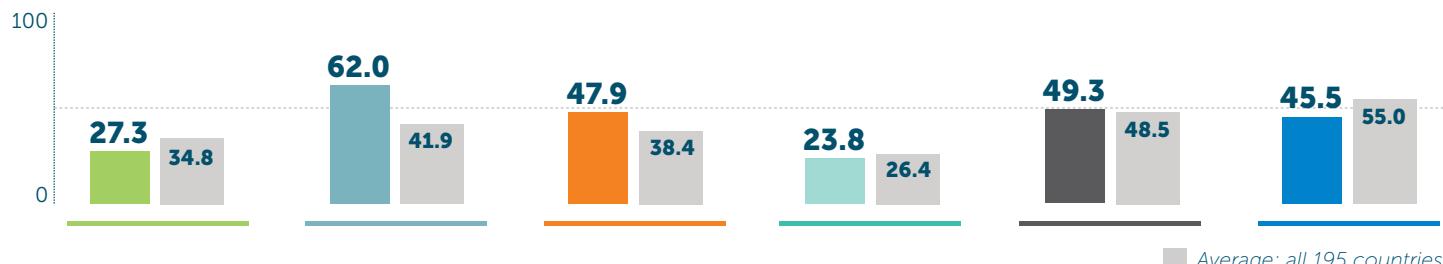
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.3	34.8	HEALTH SYSTEM	23.8	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	37.4	24.4
Zoonotic disease	13.8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	30.4	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	93	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	62.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	49.3	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	61.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	37.5	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	47.9	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	45.5	55.0
Emergency response operation	33.3	23.6	Political and security risks	14.3	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	69.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	82.4	72.7	Environmental risks	56.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	59.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



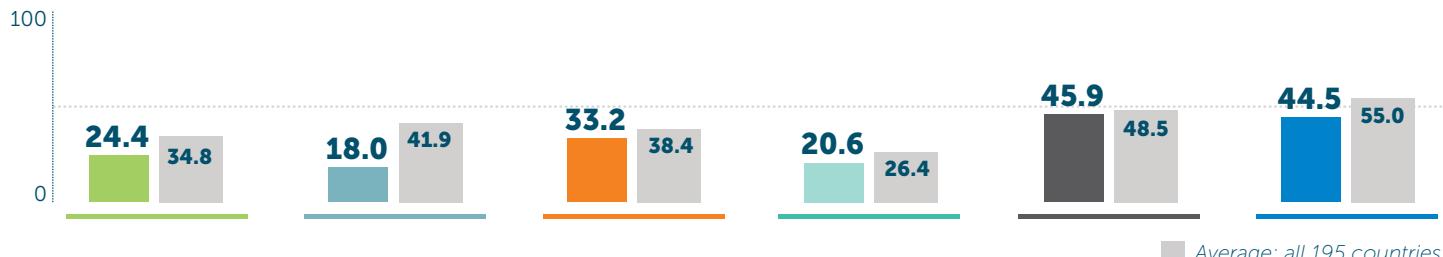
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.4	34.8	HEALTH SYSTEM	20.6	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	2.7	24.4
Zoonotic disease	4.4	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	28.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	79.8	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	18.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	45.9	48.5
Laboratory systems	41.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	26.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	0	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	33.2	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	44.5	55.0
Emergency response operation	0	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	45.1	66.1
Risk communication	0	39.4	Infrastructure adequacy	41.7	49.0
Access to communications infrastructure	77.1	72.7	Environmental risks	55.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	20.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



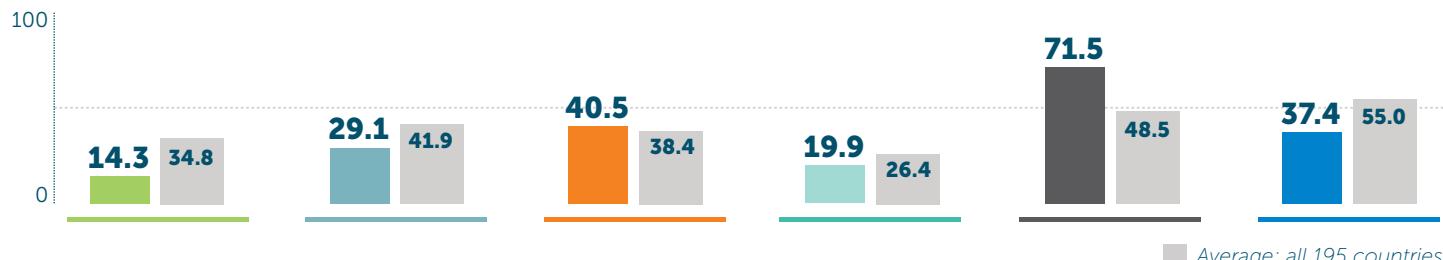
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	14.3	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	33.3	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	39.5	85.0
DETECTION AND REPORTING	29.1	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	45	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	40.5	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	53.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	19.9	26.4
Health capacity in clinics, hospitals and community care centers	1.6	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	25.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	71.5	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	75	53.4
JEE and PVS	50	17.7
Financing	83.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	37.4	55.0
Political and security risks	60.7	60.4
Socio-economic resilience	43.8	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	57.2	52.9
Public health vulnerabilities	18.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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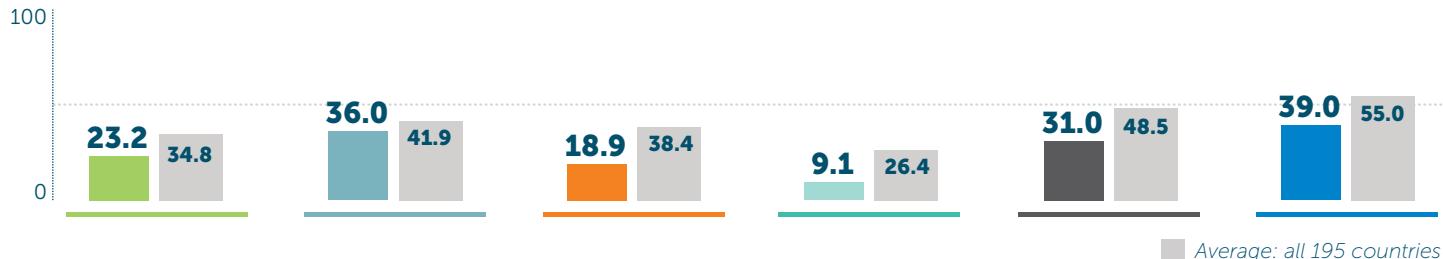
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.2	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	1.6	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	36.0	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	5	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	18.9	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	63.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.1	26.4
Health capacity in clinics, hospitals and community care centers	16.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	16.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	31.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	39.0	55.0
Political and security risks	0	60.4
Socio-economic resilience	65.2	66.1
Infrastructure adequacy	25	49.0
Environmental risks	59.9	52.9
Public health vulnerabilities	52.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



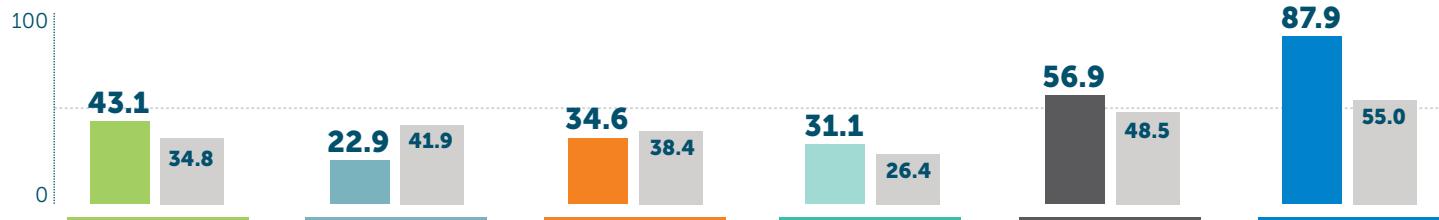
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	43.1	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	35.2	27.1
Biosecurity	20	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	22.9	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	21.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	34.6	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	93.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	31.1	26.4
Health capacity in clinics, hospitals and community care centers	25.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	44.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	56.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	87.9	55.0
Political and security risks	92.9	60.4
Socio-economic resilience	87	66.1
Infrastructure adequacy	100	49.0
Environmental risks	84.9	52.9
Public health vulnerabilities	74.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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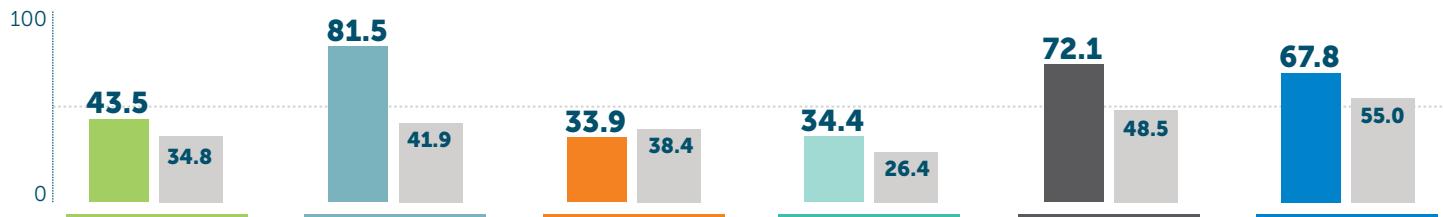
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	43.5	34.8	HEALTH SYSTEM	34.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	29.3
Zoonotic disease	31.6	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	44	16.0	Healthcare access	45.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	95.6	85.0	Capacity to test and approve new medical countermeasures	50
DETECTION AND REPORTING	81.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	72.1
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	78.3	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25
RAPID RESPONSE	33.9	38.4	Financing	50
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	67.8
Emergency response operation	33.3	23.6	Political and security risks	75
Linking public health and security authorities	0	22.6	Socio-economic resilience	87.6
Risk communication	0	39.4	Infrastructure adequacy	58.3
Access to communications infrastructure	92	72.7	Environmental risks	57.8
Trade and travel restrictions	100	97.4	Public health vulnerabilities	60

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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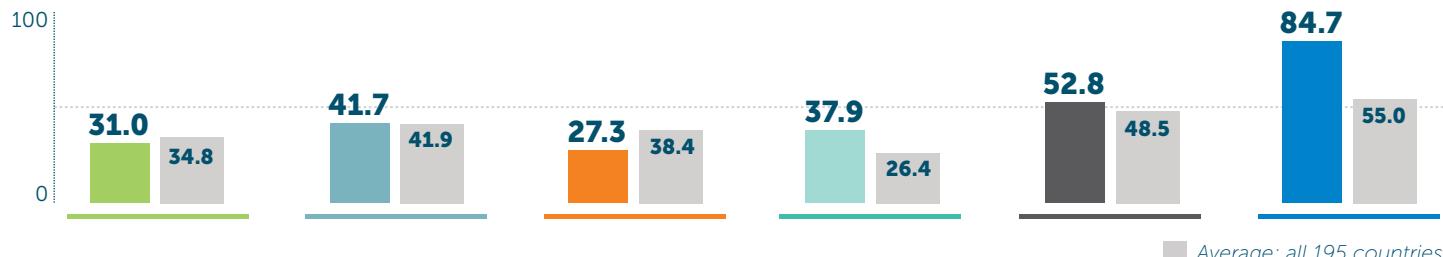
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.0	34.8
Antimicrobial resistance (AMR)	91.7	42.4
Zoonotic disease	0	27.1
Biosecurity	40	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	41.7	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	43.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	27.3	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	96.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	37.9	26.4
Health capacity in clinics, hospitals and community care centers	50	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	44.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	84.7	55.0
Political and security risks	89.3	60.4
Socio-economic resilience	99.2	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	55.8	52.9
Public health vulnerabilities	84.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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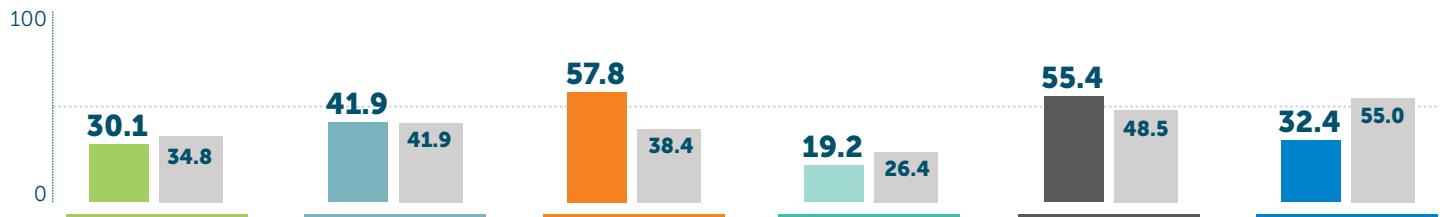
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	30.1	34.8	HEALTH SYSTEM	19.2	26.4
Antimicrobial resistance (AMR)	33.3	42.4	Health capacity in clinics, hospitals and community care centers	0.6	24.4
Zoonotic disease	40.9	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	4	16.0	Healthcare access	39.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	86	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	41.9	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	55.4	48.5
Laboratory systems	41.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	68.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	40.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	57.8	38.4	Financing	50	36.4
Emergency preparedness and response planning	62.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	32.4	55.0
Emergency response operation	33.3	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	28.6	66.1
Risk communication	100	39.4	Infrastructure adequacy	16.7	49.0
Access to communications infrastructure	53.8	72.7	Environmental risks	42.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	12.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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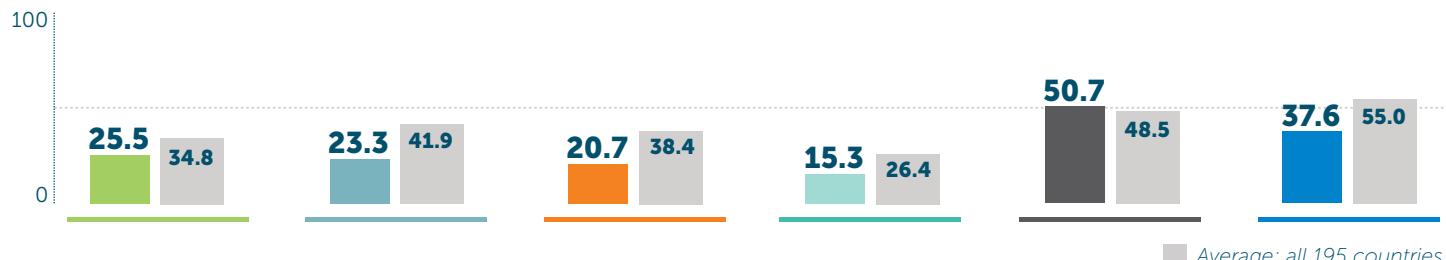
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	25.5	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	0.8	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	86	85.0
DETECTION AND REPORTING	23.3	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	23.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	20.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	41.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	15.3	26.4
Health capacity in clinics, hospitals and community care centers	19	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	31.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	50.7	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	87.5	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	37.6	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	28.5	66.1
Infrastructure adequacy	25	49.0
Environmental risks	46.2	52.9
Public health vulnerabilities	22.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



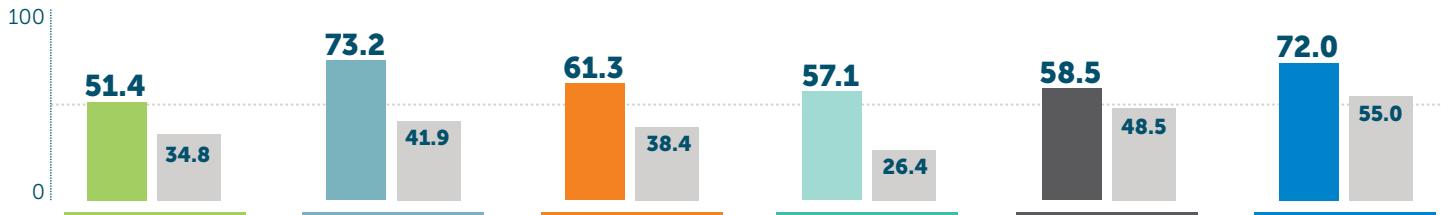
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	51.4	34.8	HEALTH SYSTEM	57.1	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	26.6	24.4
Zoonotic disease	47.2	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	44	16.0	Healthcare access	30.4	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	100	20.8
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	73.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	58.5	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	80	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	93.8	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	61.3	38.4	Financing	50	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	72.0	55.0
Emergency response operation	66.7	23.6	Political and security risks	71.4	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	92.1	66.1
Risk communication	75	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	90	72.7	Environmental risks	67.4	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	55.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



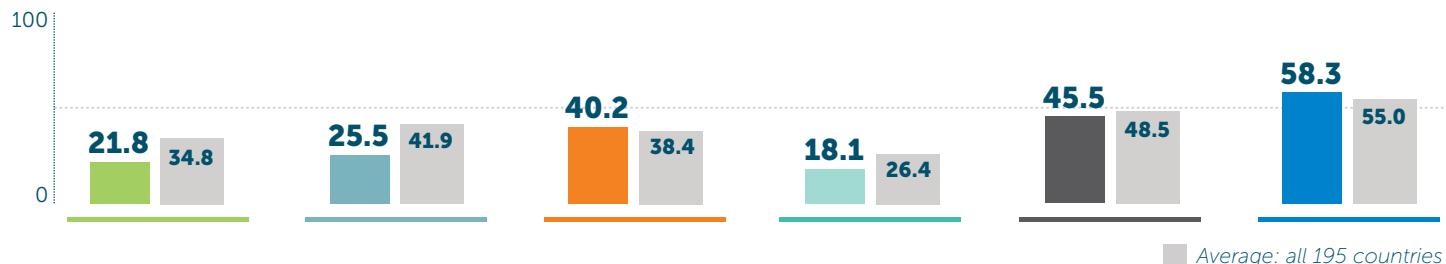
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	21.8	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	25.5	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	40.2	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	67.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	18.1	26.4
Health capacity in clinics, hospitals and community care centers	22.3	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	30.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	45.5	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	58.3	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	71.2	66.1
Infrastructure adequacy	50	49.0
Environmental risks	58.7	52.9
Public health vulnerabilities	59.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



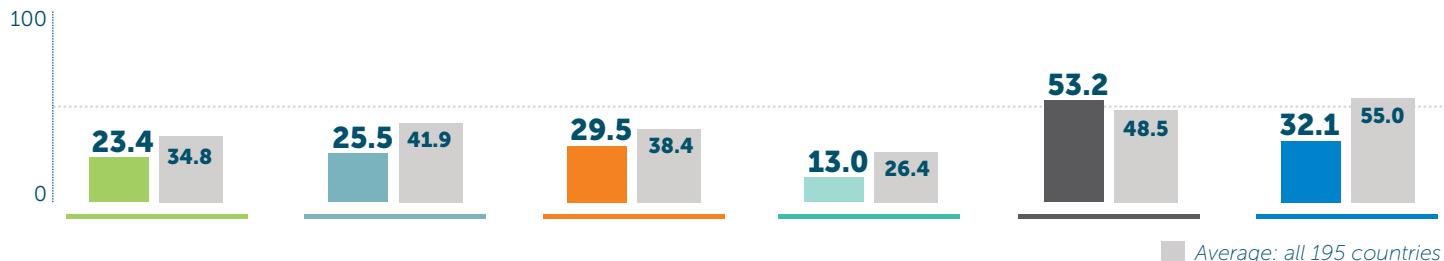
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.4	34.8	HEALTH SYSTEM	13.0	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	0.5	24.4
Zoonotic disease	34.4	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	4	16.0	Healthcare access	22.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	78.1	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	25.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	53.2	48.5
Laboratory systems	25	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	23.3	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	15.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	75	17.7
RAPID RESPONSE	29.5	38.4	Financing	50	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	32.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	25	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	38.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	16.7	49.0
Access to communications infrastructure	51.7	72.7	Environmental risks	65	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	20.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



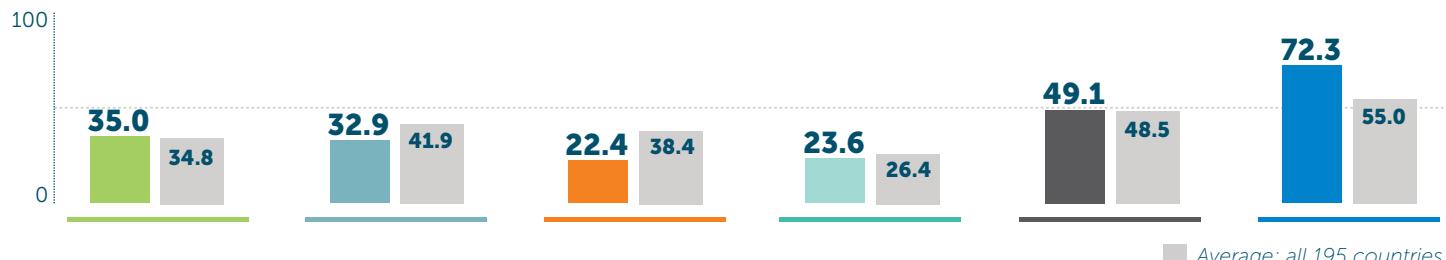
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	35.0	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	8.8	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93	85.0
DETECTION AND REPORTING	32.9	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	26.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	22.4	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	92.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	23.6	26.4
Health capacity in clinics, hospitals and community care centers	24.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	41.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	72.3	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	93.8	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	54.3	52.9
Public health vulnerabilities	70.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

Marshall Islands

18.2 Index Score

191/195



PREVENT



DETECT



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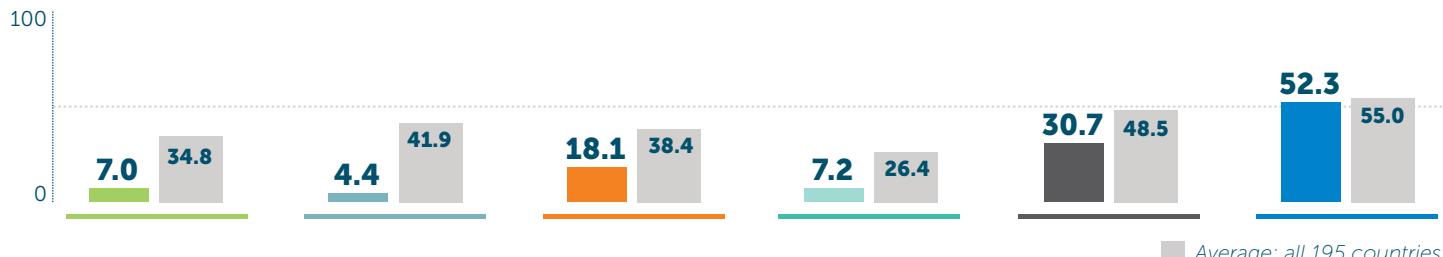
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	7.0	34.8	HEALTH SYSTEM	7.2	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	8.6	24.4
Zoonotic disease	0	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	30.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	36	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	4.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	30.7	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	0	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	18.1	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	52.3	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	71.8	66.1
Risk communication	0	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	56.6	72.7	Environmental risks	27.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	42.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



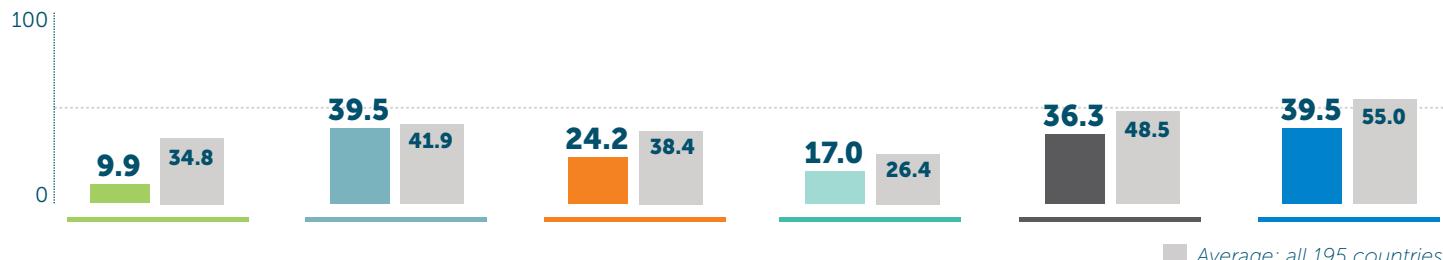
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	9.9	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	13.3	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	38.6	85.0
DETECTION AND REPORTING	39.5	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	20	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	24.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	60.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	17.0	26.4
Health capacity in clinics, hospitals and community care centers	1.1	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	27.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	36.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	15.6	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	39.5	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	42.2	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	61.8	52.9
Public health vulnerabilities	25.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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DETECT



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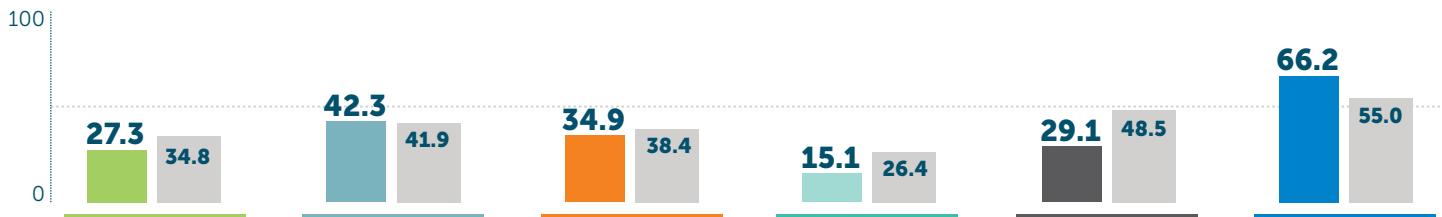
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	27.3	34.8	HEALTH SYSTEM	15.1	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	38.1	24.4
Zoonotic disease	0.6	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	29.1	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	91.2	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	42.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	29.1	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	61.7	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	40.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	34.9	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	75	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	66.2	55.0
Emergency response operation	0	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	79.8	66.1
Risk communication	50	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	71.1	72.7	Environmental risks	58.5	52.9
Trade and travel restrictions	50	97.4	Public health vulnerabilities	54.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



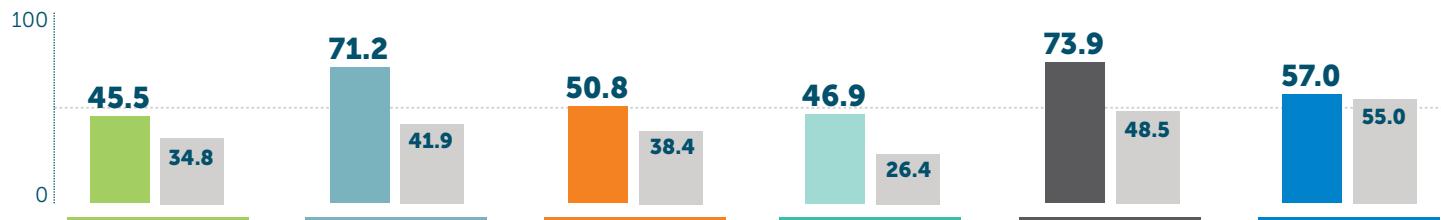
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	45.5	34.8	HEALTH SYSTEM	46.9
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	51.2
Zoonotic disease	34.7	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	44	16.0	Healthcare access	30.1
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	82.5	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	71.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	73.9
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	80	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	25	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0
RAPID RESPONSE	50.8	38.4	Financing	50
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	100
Exercising response plans	0	16.2	RISK ENVIRONMENT	57.0
Emergency response operation	33.3	23.6	Political and security risks	53.6
Linking public health and security authorities	100	22.6	Socio-economic resilience	60.7
Risk communication	50	39.4	Infrastructure adequacy	58.3
Access to communications infrastructure	70.3	72.7	Environmental risks	59
Trade and travel restrictions	100	97.4	Public health vulnerabilities	54.4

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



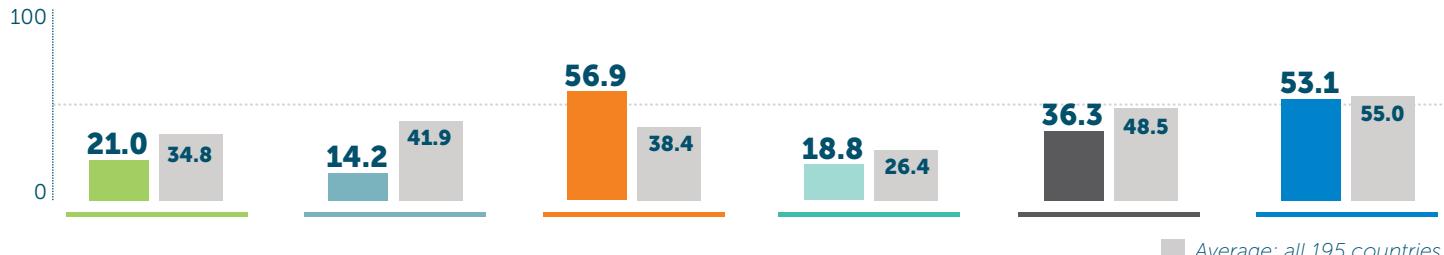
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	21.0	34.8	HEALTH SYSTEM	18.8	26.4
Antimicrobial resistance (AMR)	25	42.4	Health capacity in clinics, hospitals and community care centers	8.7	24.4
Zoonotic disease	7.5	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	0	16.0	Healthcare access	33.3	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	79.8	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	14.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	36.3	48.5
Laboratory systems	25	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	5	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	25	42.3	International commitments	15.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	56.9	38.4	Financing	50	36.4
Emergency preparedness and response planning	75	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	53.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	85.7	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	59.5	66.1
Risk communication	50	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	55.9	72.7	Environmental risks	49.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	35.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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DETECT



RESPOND



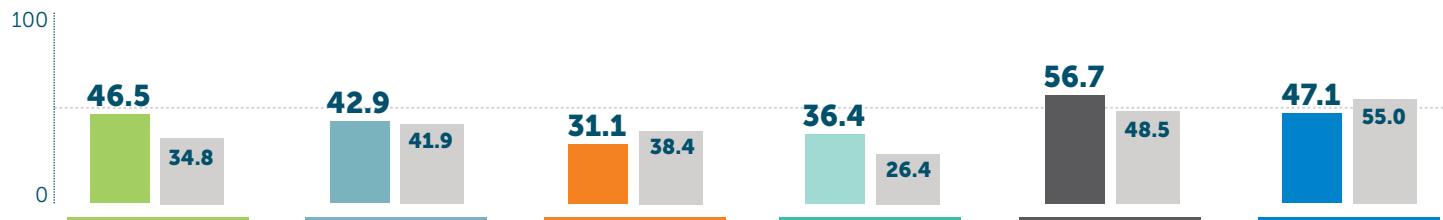
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	46.5	34.8	HEALTH SYSTEM	36.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	37.7
Zoonotic disease	49.7	27.1	Medical countermeasures and personnel deployment	33.3
Biosecurity	44	16.0	Healthcare access	48.4
Biosafety	25	22.8	Communications with healthcare workers during a public health emergency	0
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	50
DETECTION AND REPORTING	42.9	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	56.7
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	55	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	25	42.3	International commitments	50
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25
RAPID RESPONSE	31.1	38.4	Financing	50
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	47.1
Emergency response operation	33.3	23.6	Political and security risks	42.9
Linking public health and security authorities	0	22.6	Socio-economic resilience	65.1
Risk communication	25	39.4	Infrastructure adequacy	25
Access to communications infrastructure	81.7	72.7	Environmental risks	59.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	46

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



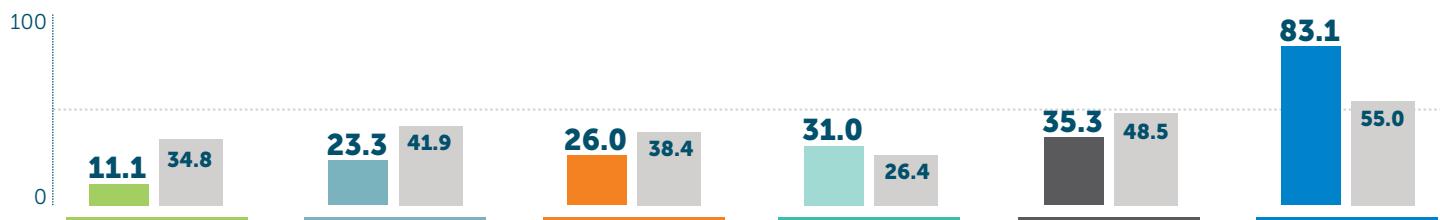
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	11.1	34.8	HEALTH SYSTEM	31.0	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	56.4	24.4
Zoonotic disease	0	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	20	16.0	Healthcare access	31.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	40.4	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	23.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	35.3	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	23.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	26.0	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	83.1	55.0
Emergency response operation	0	23.6	Political and security risks	96.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	86.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	100	49.0
Access to communications infrastructure	84.9	72.7	Environmental risks	52.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	75.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



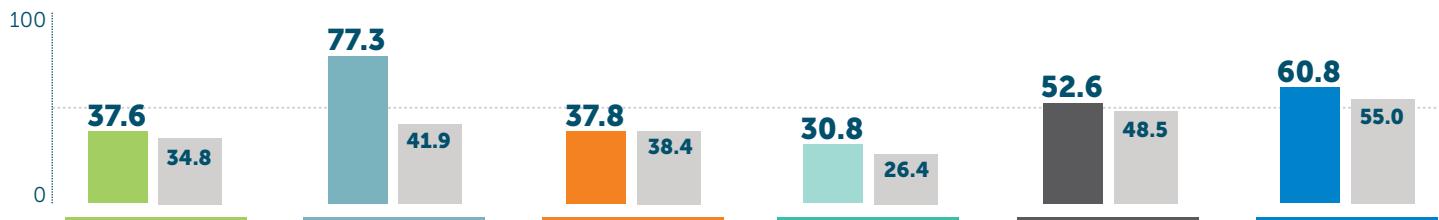
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	37.6	34.8	HEALTH SYSTEM	30.8	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	23.1	24.4
Zoonotic disease	52.4	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	4	16.0	Healthcare access	31.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	77.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	52.6	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	31.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	78.1	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	37.8	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	60.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	72.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	79.9	72.7	Environmental risks	65.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	37.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



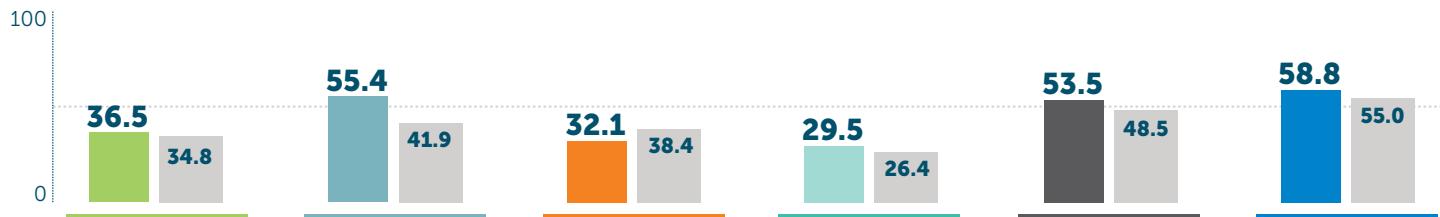
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	36.5	34.8	HEALTH SYSTEM	29.5	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	16.9	24.4
Zoonotic disease	42.8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	26.7	16.0	Healthcare access	47.5	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	64	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	55.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	53.5	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	30	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	40.6	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	32.1	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	58.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	64.3	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	77.2	66.1
Risk communication	25	39.4	Infrastructure adequacy	50	49.0
Access to communications infrastructure	89.5	72.7	Environmental risks	40	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	60.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



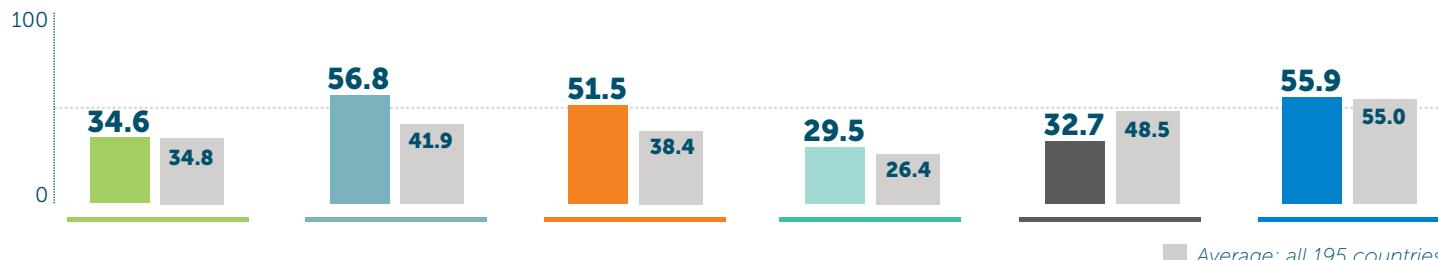
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	34.6	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	40.4	27.1
Biosecurity	24	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	56.8	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	51.5	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	74.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	29.5	26.4
Health capacity in clinics, hospitals and community care centers	20.5	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	26.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	32.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	37.5	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	55.9	55.0
Political and security risks	50	60.4
Socio-economic resilience	60.9	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	67.4	52.9
Public health vulnerabilities	45.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



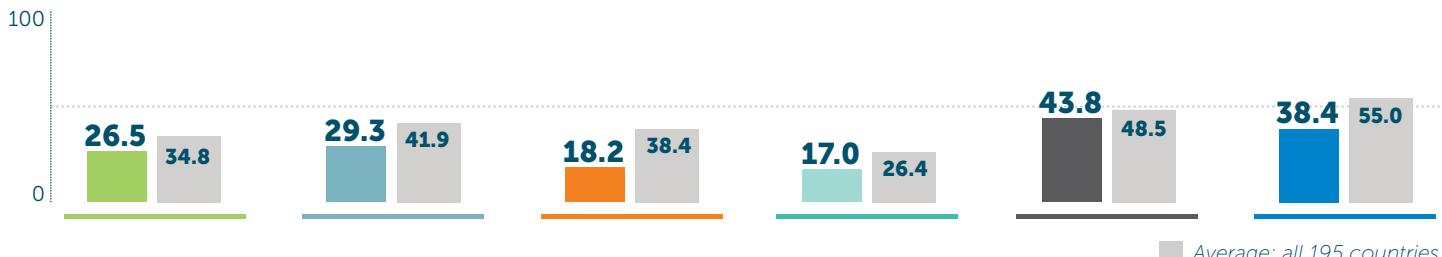
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	26.5	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	8.8	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	29.3	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	36.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	18.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	57.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	17.0	26.4
Health capacity in clinics, hospitals and community care centers	18.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	41.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	43.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	12.5	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.4	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	31.5	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	55.4	52.9
Public health vulnerabilities	11.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



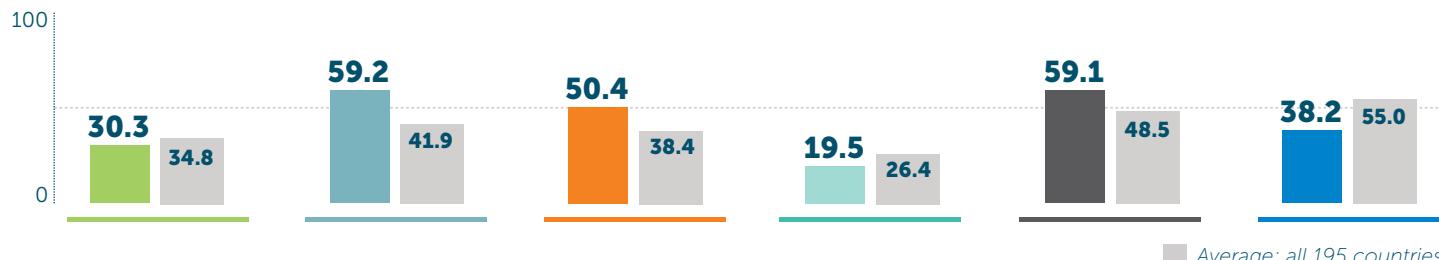
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	30.3	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	49.4	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	86	85.0
DETECTION AND REPORTING	59.2	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	11.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	50.4	38.4
Emergency preparedness and response planning	81.3	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	61.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	19.5	26.4
Health capacity in clinics, hospitals and community care centers	20	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	24.5	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	59.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	37.5	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.2	55.0
Political and security risks	25	60.4
Socio-economic resilience	72.5	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	33.4	52.9
Public health vulnerabilities	30.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



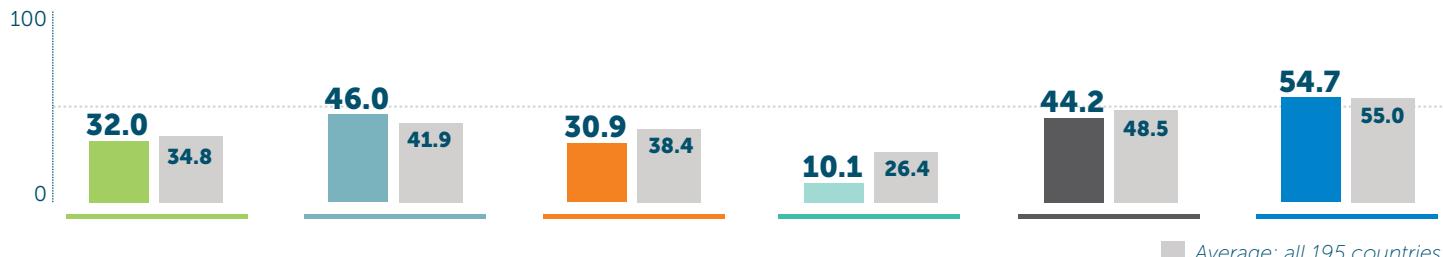
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	32.0	34.8	HEALTH SYSTEM	10.1	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	7.7	24.4
Zoonotic disease	34.6	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	4	16.0	Healthcare access	30.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	87.7	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	46.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	44.2	48.5
Laboratory systems	58.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	20	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	15.6	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	30.9	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	54.7	55.0
Emergency response operation	0	23.6	Political and security risks	75	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	63.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	69.2	72.7	Environmental risks	45.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	29.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



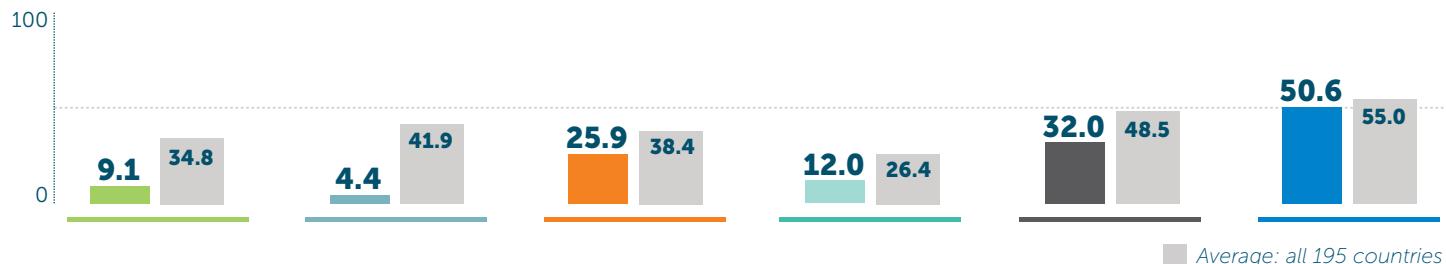
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	9.1	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	46.5	85.0
DETECTION AND REPORTING	4.4	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	25.9	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	74.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.0	26.4
Health capacity in clinics, hospitals and community care centers	34.3	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	32.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.6	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	69.7	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	27.2	52.9
Public health vulnerabilities	47	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



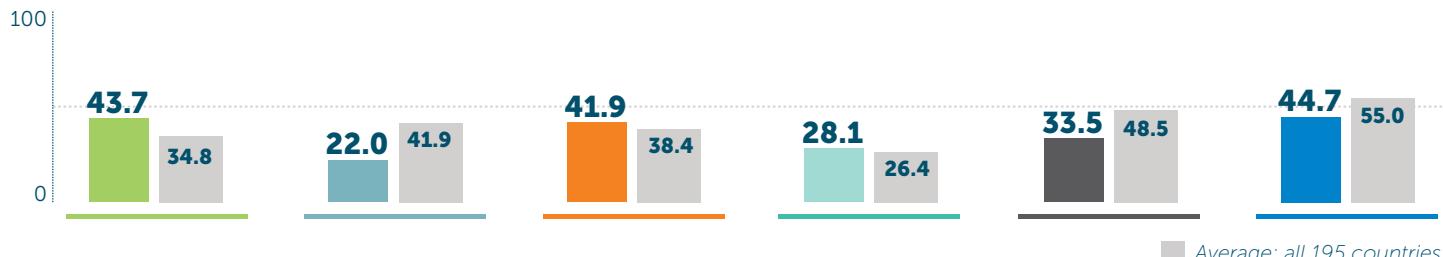
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	43.7	34.8	HEALTH SYSTEM	28.1	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	3.3	24.4
Zoonotic disease	40.6	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	40	16.0	Healthcare access	25	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	22.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	33.5	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	33.3	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	41.9	38.4	Financing	50	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	44.7	55.0
Emergency response operation	33.3	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	46.9	66.1
Risk communication	75	39.4	Infrastructure adequacy	25	49.0
Access to communications infrastructure	64.5	72.7	Environmental risks	58	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	33.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



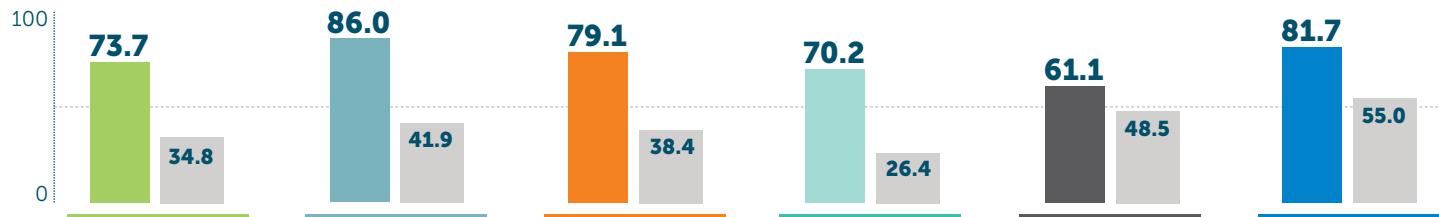
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	73.7	34.8
Antimicrobial resistance (AMR)	100	42.4
Zoonotic disease	55.4	27.1
Biosecurity	52	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	94.7	85.0
DETECTION AND REPORTING	86.0	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	95	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	79.1	38.4
Emergency preparedness and response planning	87.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	100	39.4
Access to communications infrastructure	92.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	70.2	26.4
Health capacity in clinics, hospitals and community care centers	66.3	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	95.7	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	61.1	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	81.7	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	99.9	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	47.8	52.9
Public health vulnerabilities	80.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



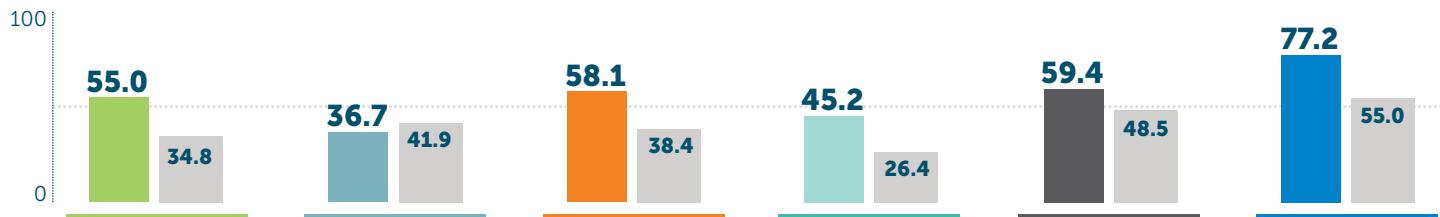
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	55.0	34.8	HEALTH SYSTEM	45.2
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	45.7
Zoonotic disease	58.8	27.1	Medical countermeasures and personnel deployment	66.7
Biosecurity	28	16.0	Healthcare access	45.8
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	36.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	59.4
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50
Real-time surveillance and reporting	48.3	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	25	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0
RAPID RESPONSE	58.1	38.4	Financing	50
Emergency preparedness and response planning	75	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	77.2
Emergency response operation	33.3	23.6	Political and security risks	92.9
Linking public health and security authorities	0	22.6	Socio-economic resilience	97.4
Risk communication	100	39.4	Infrastructure adequacy	83.3
Access to communications infrastructure	96.6	72.7	Environmental risks	32.2
Trade and travel restrictions	100	97.4	Public health vulnerabilities	74.1

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



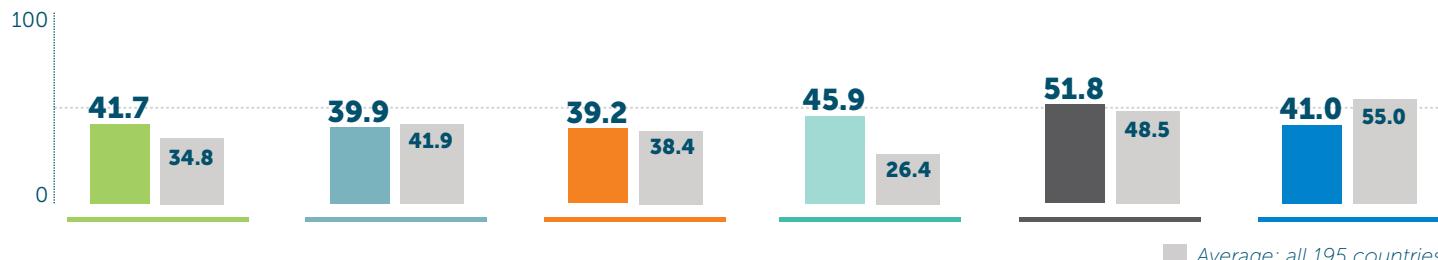
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	41.7	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	33.8	27.1
Biosecurity	0	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	39.9	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	60	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	39.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	74.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	45.9	26.4
Health capacity in clinics, hospitals and community care centers	46.2	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	46.7	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	51.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	43.8	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	41.0	55.0
Political and security risks	35.7	60.4
Socio-economic resilience	43.5	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	39	52.9
Public health vulnerabilities	45.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



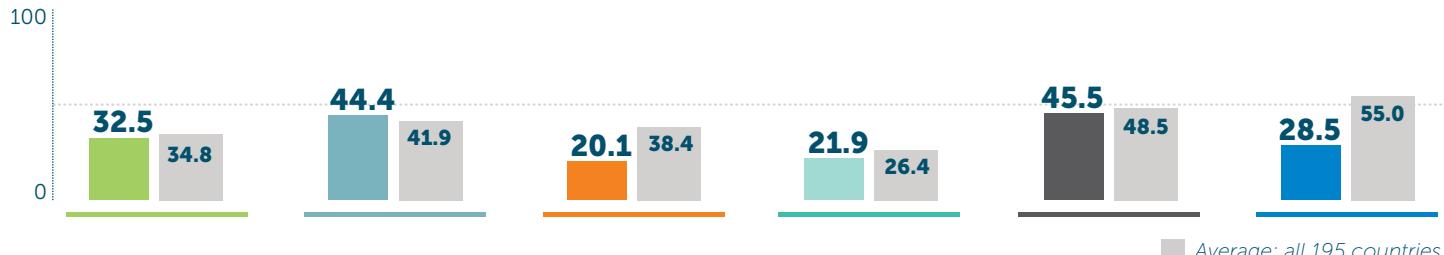
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	32.5	34.8	HEALTH SYSTEM	21.9	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	17.1	24.4
Zoonotic disease	27	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	38.7	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	93.9	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	44.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	45.5	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	53.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	20.1	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	28.5	55.0
Emergency response operation	0	23.6	Political and security risks	17.9	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	39.9	66.1
Risk communication	25	39.4	Infrastructure adequacy	8.3	49.0
Access to communications infrastructure	36.6	72.7	Environmental risks	75.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	9.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



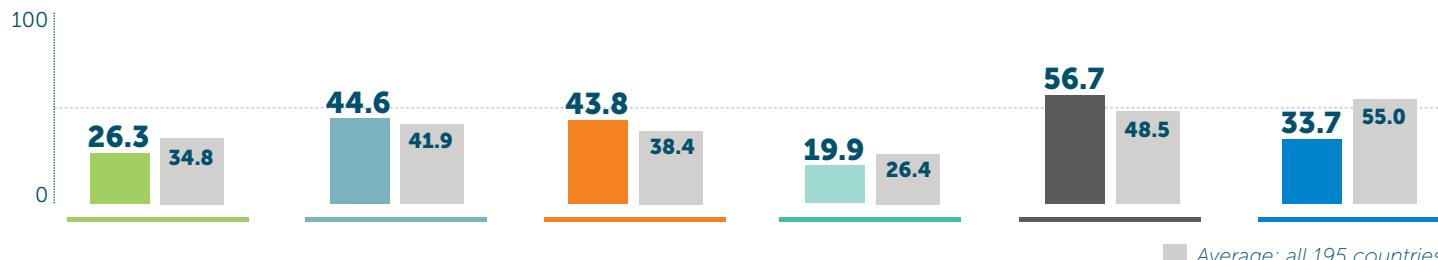
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	26.3	34.8
Antimicrobial resistance (AMR)	41.7	42.4
Zoonotic disease	33.5	27.1
Biosecurity	24	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	44.6	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	70	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	43.8	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	100	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	56.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	19.9	26.4
Health capacity in clinics, hospitals and community care centers	2.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	71.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	56.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	78.1	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	33.7	55.0
Political and security risks	39.3	60.4
Socio-economic resilience	42.1	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	55.2	52.9
Public health vulnerabilities	18.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



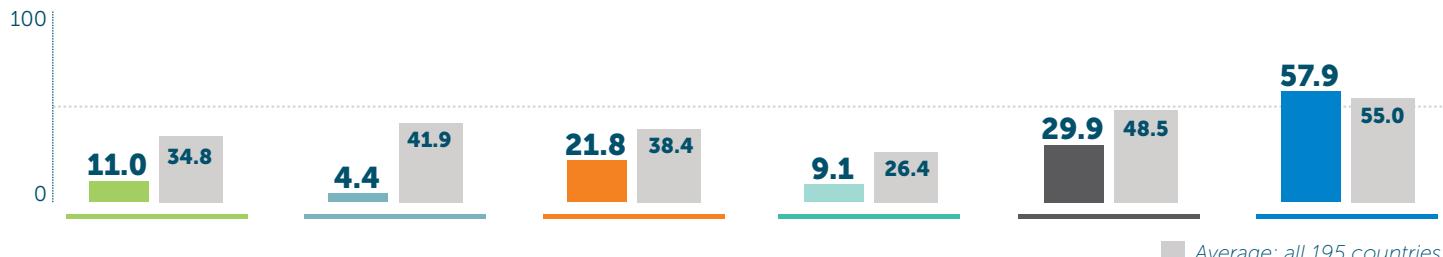
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	11.0	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	6.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	4.4	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	21.8	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	71	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.1	26.4
Health capacity in clinics, hospitals and community care centers	17.6	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	33	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	29.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	12.5	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	57.9	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	66.6	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	39.6	52.9
Public health vulnerabilities	51.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



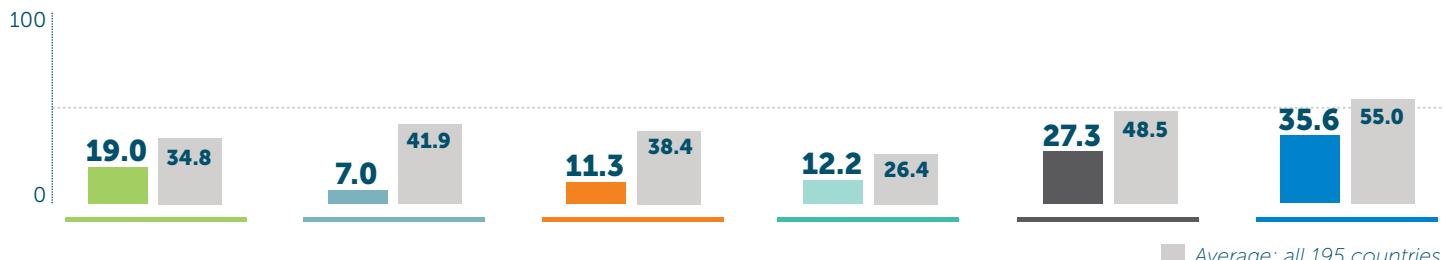
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	19.0	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	6.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50	85.0
DETECTION AND REPORTING	7.0	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	11.3	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	0.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.2	26.4
Health capacity in clinics, hospitals and community care centers	34.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	33.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	27.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	12.5	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	33.3	68.1
RISK ENVIRONMENT	35.6	55.0
Political and security risks	35.7	60.4
Socio-economic resilience	14.1	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	40	52.9
Public health vulnerabilities	45.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



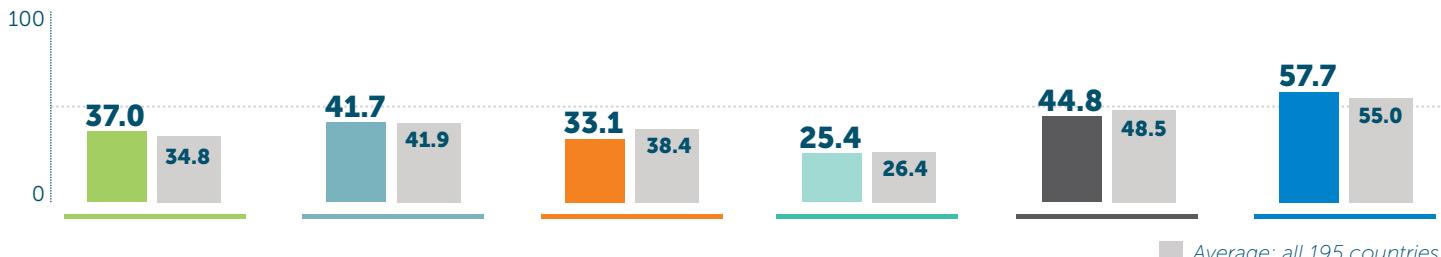
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	37.0	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	27.8	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	86	85.0
DETECTION AND REPORTING	41.7	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	66.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	33.1	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	81.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	25.4	26.4
Health capacity in clinics, hospitals and community care centers	42.2	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	44.8	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	34.4	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	57.7	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	85.4	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	53.6	52.9
Public health vulnerabilities	55.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



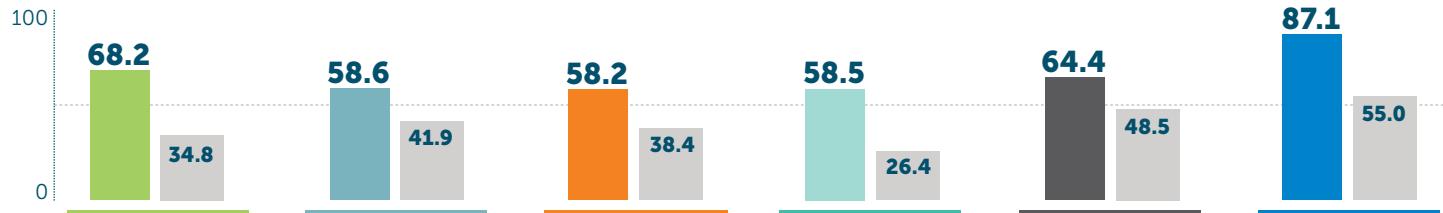
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	68.2	34.8	HEALTH SYSTEM	58.5	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	56.1	24.4
Zoonotic disease	45.2	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	72	16.0	Healthcare access	43.4	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	58.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	64.4	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	90	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	58.2	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	87.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	96.4	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	99.8	66.1
Risk communication	75	39.4	Infrastructure adequacy	91.7	49.0
Access to communications infrastructure	94	72.7	Environmental risks	59.3	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	84.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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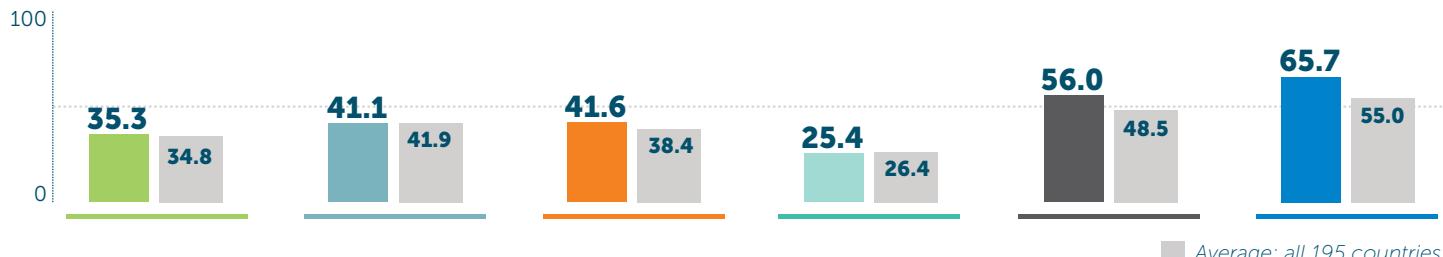
HEALTH



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RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	35.3	34.8	HEALTH SYSTEM	25.4	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	26.9	24.4
Zoonotic disease	20.7	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	48.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	41.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	56.0	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	48.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	25	42.3	International commitments	87.5	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	41.6	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	6.3	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	65.7	55.0
Emergency response operation	33.3	23.6	Political and security risks	64.3	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	73.2	66.1
Risk communication	75	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	86.9	72.7	Environmental risks	50.1	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	64.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



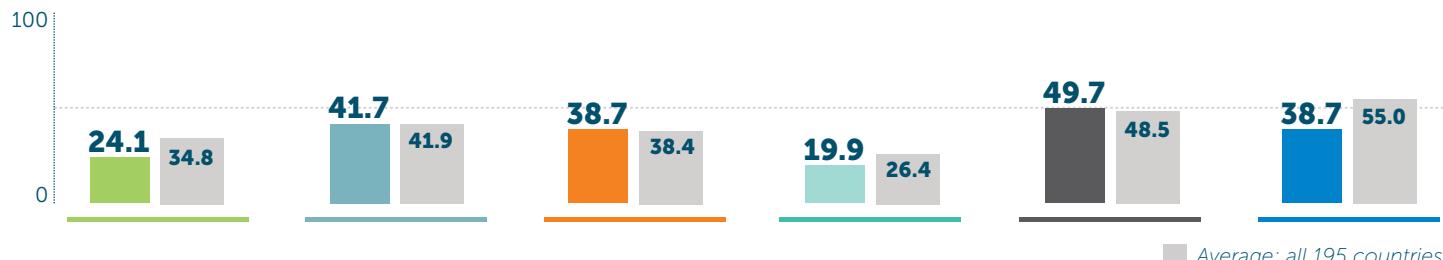
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.1	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	7.2	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	79.8	85.0
DETECTION AND REPORTING	41.7	41.9
Laboratory systems	75	54.4
Real-time surveillance and reporting	35	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	38.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	0	39.4
Access to communications infrastructure	19.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	19.9	26.4
Health capacity in clinics, hospitals and community care centers	3.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	23.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	84.4	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.7	55.0
Political and security risks	17.9	60.4
Socio-economic resilience	56.1	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	58.9	52.9
Public health vulnerabilities	33.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



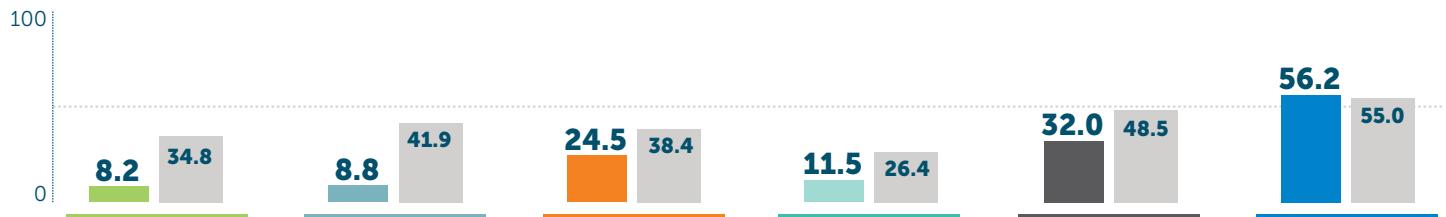
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	8.2	34.8	HEALTH SYSTEM	11.5	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	15.4	24.4
Zoonotic disease	4.5	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	48	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	37.7	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	8.8	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	32.0	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	16.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	0	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	24.5	38.4	Financing	0	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	56.2	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	71.3	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	73	72.7	Environmental risks	26.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	61.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



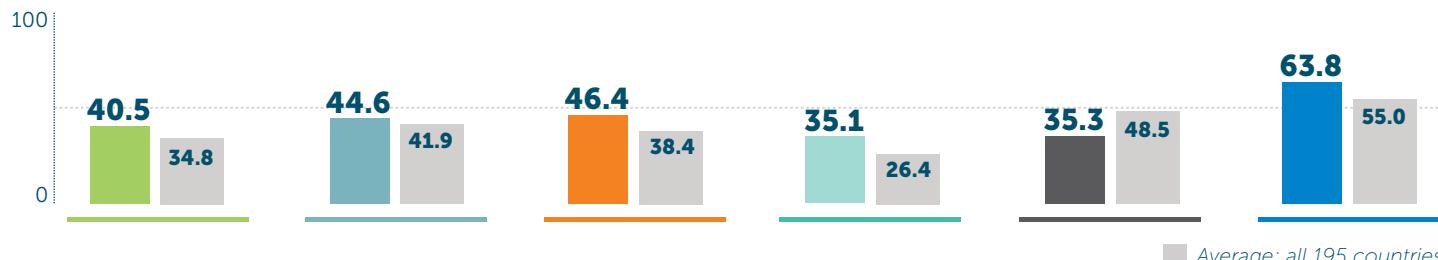
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	40.5	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	21.5	27.1
Biosecurity	24	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	44.6	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	46.7	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	46.4	38.4
Emergency preparedness and response planning	75	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	100	22.6
Risk communication	0	39.4
Access to communications infrastructure	88.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	35.1	26.4
Health capacity in clinics, hospitals and community care centers	51	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	28.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	35.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	63.8	55.0
Political and security risks	67.9	60.4
Socio-economic resilience	67.6	66.1
Infrastructure adequacy	75	49.0
Environmental risks	52.4	52.9
Public health vulnerabilities	54.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



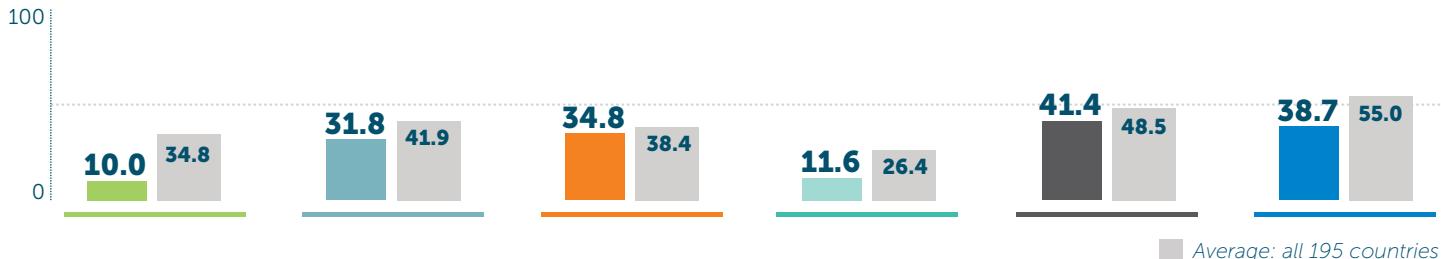
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	10.0	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	0.1	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	50.9	85.0
DETECTION AND REPORTING	31.8	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	15	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	34.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	55.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	11.6	26.4
Health capacity in clinics, hospitals and community care centers	22.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	24.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	41.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.7	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	54.9	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	60.3	52.9
Public health vulnerabilities	11.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



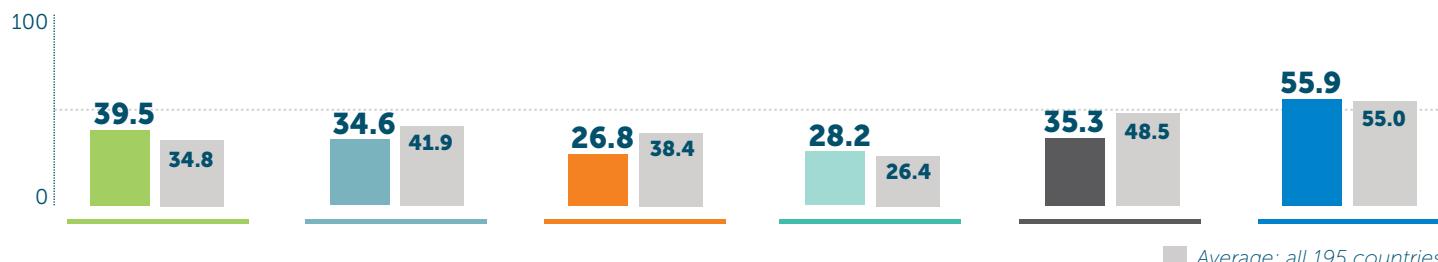
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	39.5	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	55.2	27.1
Biosecurity	0	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	83.3	85.0
DETECTION AND REPORTING	34.6	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	56.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	26.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	82.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	28.2	26.4
Health capacity in clinics, hospitals and community care centers	5.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	35.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	55.9	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	77.8	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	44.6	52.9
Public health vulnerabilities	50.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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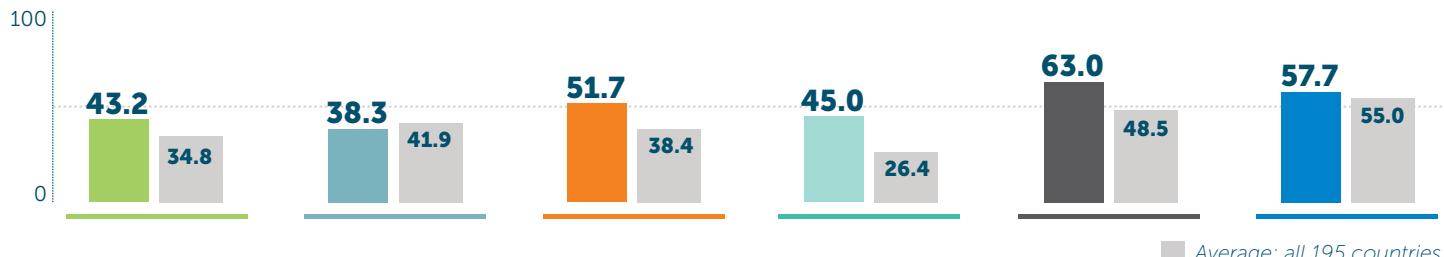
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	43.2	34.8	HEALTH SYSTEM	45.0
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	6.3
Zoonotic disease	47	27.1	Medical countermeasures and personnel deployment	0
Biosecurity	4	16.0	Healthcare access	47.2
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	100
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	86	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	38.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	63.0
Laboratory systems	33.3	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	86.7	39.1	Cross-border agreements on public and animal health emergency response	50
Epidemiology workforce	25	42.3	International commitments	90.6
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25
RAPID RESPONSE	51.7	38.4	Financing	50
Emergency preparedness and response planning	87.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	57.7
Emergency response operation	33.3	23.6	Political and security risks	75
Linking public health and security authorities	0	22.6	Socio-economic resilience	69.8
Risk communication	75	39.4	Infrastructure adequacy	58.3
Access to communications infrastructure	64.5	72.7	Environmental risks	33.6
Trade and travel restrictions	100	97.4	Public health vulnerabilities	48.3

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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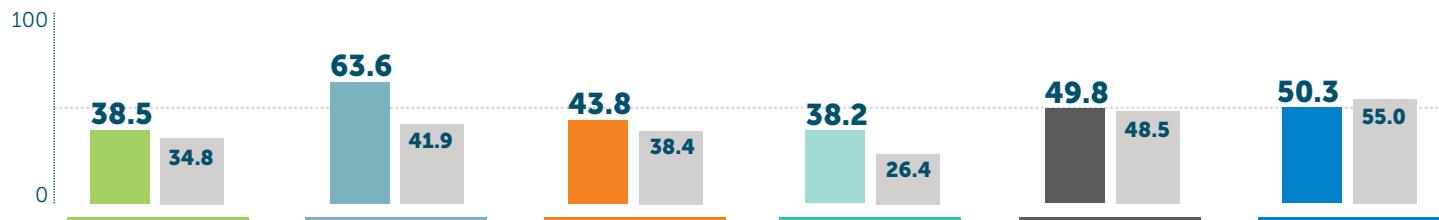
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	38.5	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	20.7	27.1
Biosecurity	30.7	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	91.2	85.0
DETECTION AND REPORTING	63.6	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	51.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	43.8	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	50	16.2
Emergency response operation	66.7	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	84.6	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	38.2	26.4
Health capacity in clinics, hospitals and community care centers	20.9	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	43.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	87.5	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	50.3	55.0
Political and security risks	39.3	60.4
Socio-economic resilience	87.1	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	55	52.9
Public health vulnerabilities	41.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



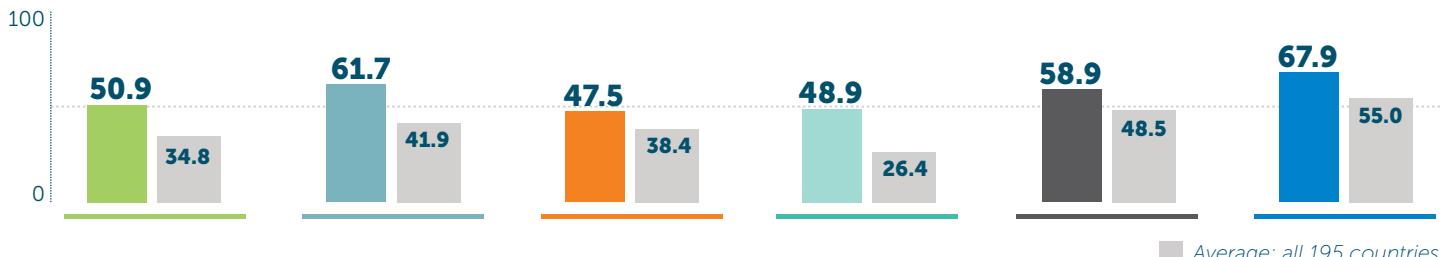
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	50.9	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	40.2	27.1
Biosecurity	30.7	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	95.6	85.0
DETECTION AND REPORTING	61.7	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	53.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	47.5	38.4
Emergency preparedness and response planning	18.8	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	25	39.4
Access to communications infrastructure	87.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	48.9	26.4
Health capacity in clinics, hospitals and community care centers	63	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	47	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	58.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	67.9	55.0
Political and security risks	75	60.4
Socio-economic resilience	66.1	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	68.8	52.9
Public health vulnerabilities	62.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



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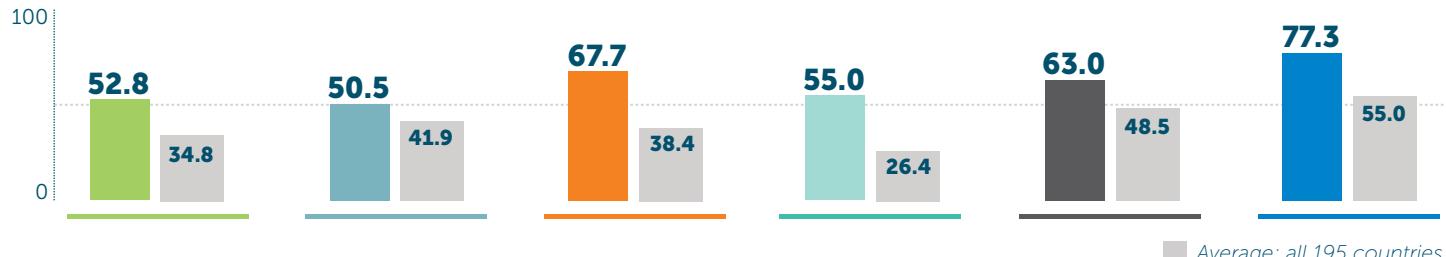
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	52.8	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	49.3	27.1
Biosecurity	28	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	50.5	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	83.3	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	67.7	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	100	39.4
Access to communications infrastructure	80.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	55.0	26.4
Health capacity in clinics, hospitals and community care centers	46	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	94.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	63.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	77.3	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	87.2	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	55.1	52.9
Public health vulnerabilities	68	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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DETECT



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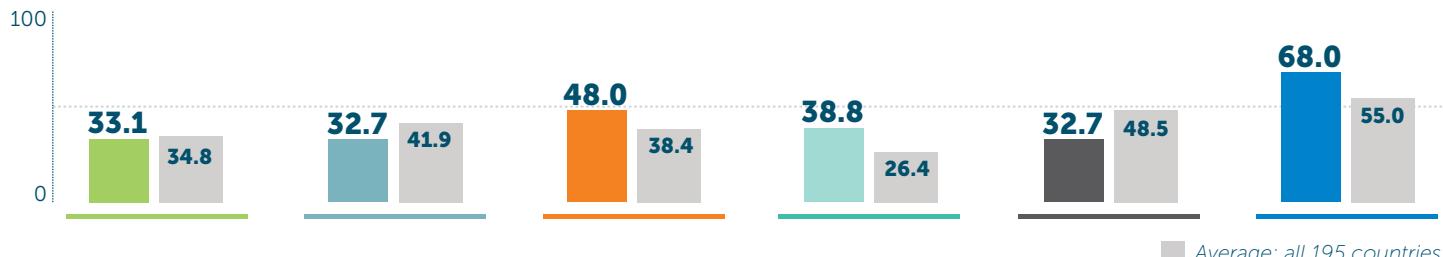
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	33.1	34.8	HEALTH SYSTEM	38.8	26.4
Antimicrobial resistance (AMR)	33.3	42.4	Health capacity in clinics, hospitals and community care centers	52.6	24.4
Zoonotic disease	27.8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	20	16.0	Healthcare access	47.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	32.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	32.7	48.5
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	33.3	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	25	42.3	International commitments	37.5	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	48.0	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	18.8	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	68.0	55.0
Emergency response operation	33.3	23.6	Political and security risks	64.3	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	75.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	91.3	72.7	Environmental risks	52.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	71.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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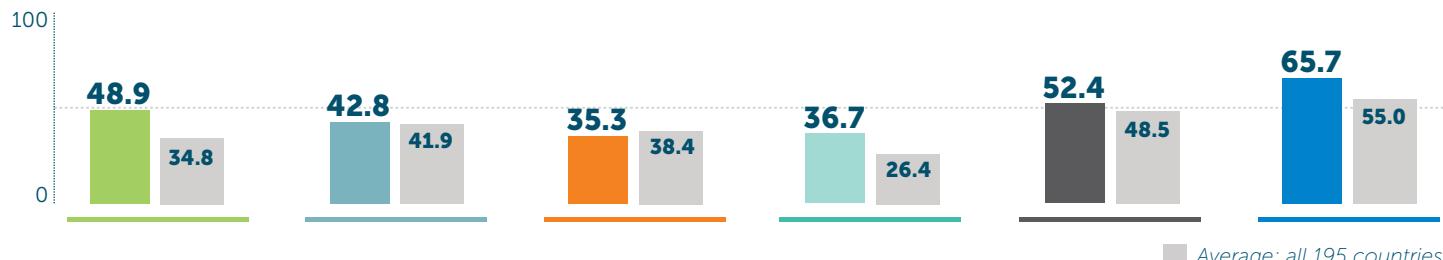
HEALTH



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RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	48.9	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	56.9	27.1
Biosecurity	24	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	89.5	85.0
DETECTION AND REPORTING	42.8	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	63.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	35.3	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	79.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	36.7	26.4
Health capacity in clinics, hospitals and community care centers	22.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	47.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	96.9	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	65.7	55.0
Political and security risks	75	60.4
Socio-economic resilience	71.8	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	57.1	52.9
Public health vulnerabilities	56.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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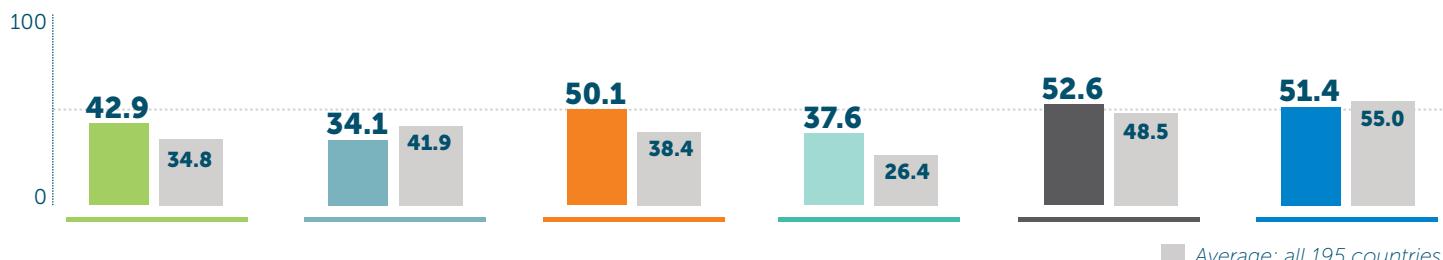
HEALTH



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RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	42.9	34.8	HEALTH SYSTEM	37.6	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	47.3	24.4
Zoonotic disease	15.3	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	37.3	16.0	Healthcare access	46.1	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	99.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	34.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	52.6	48.5
Laboratory systems	58.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	46.7	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	25	42.3	International commitments	50	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	50.1	38.4	Financing	50	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	51.4	55.0
Emergency response operation	0	23.6	Political and security risks	35.7	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	64.4	66.1
Risk communication	25	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	90.2	72.7	Environmental risks	45.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	54.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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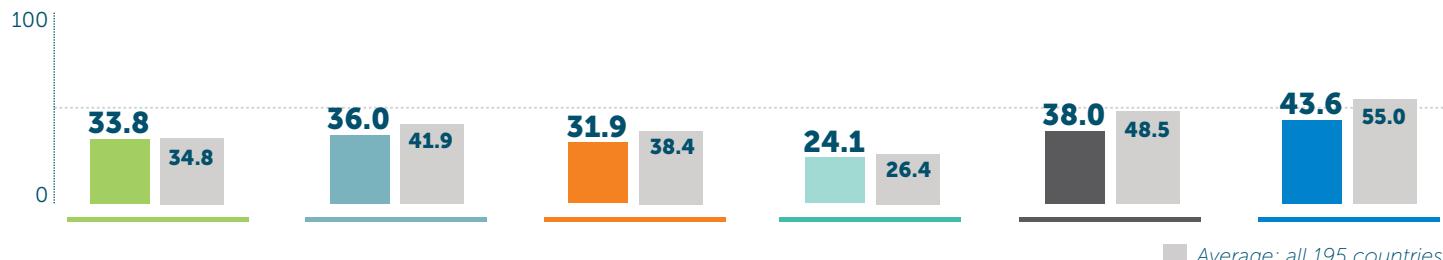
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	33.8	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	23.9	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	36.0	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	38.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	31.9	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	100	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	58.7	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	24.1	26.4
Health capacity in clinics, hospitals and community care centers	20.1	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	48.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	38.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	43.6	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	43.6	66.1
Infrastructure adequacy	25	49.0
Environmental risks	73.6	52.9
Public health vulnerabilities	25.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



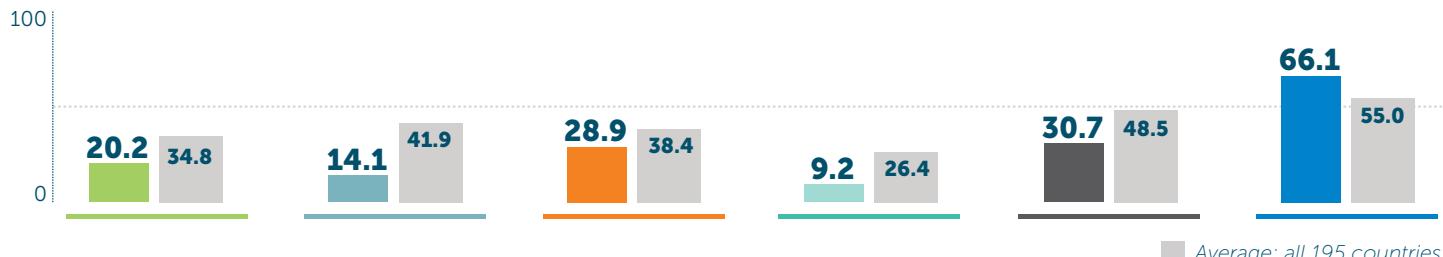
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	20.2	34.8	HEALTH SYSTEM	9.2	26.4
Antimicrobial resistance (AMR)	16.7	42.4	Health capacity in clinics, hospitals and community care centers	3.6	24.4
Zoonotic disease	7.1	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	29.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	83.3	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	14.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	30.7	48.5
Laboratory systems	33.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	20	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	28.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	28.9	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	66.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	81.5	66.1
Risk communication	25	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	63.5	72.7	Environmental risks	58.3	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	49.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



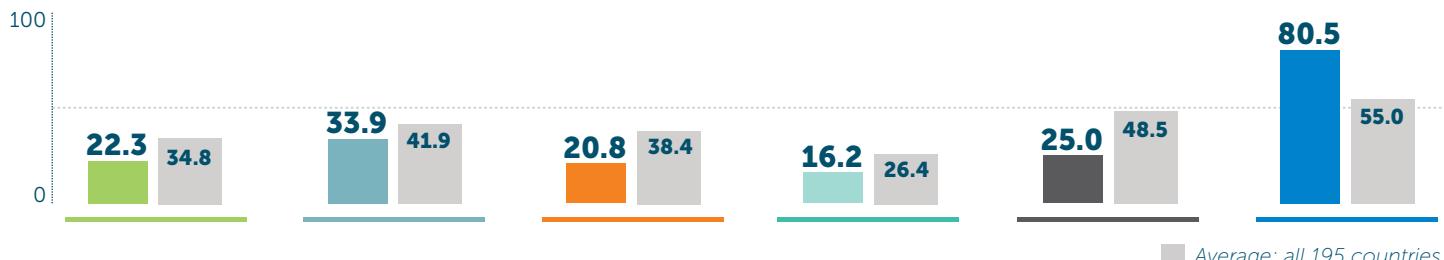
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.3	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	9.5	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	85.1	85.0
DETECTION AND REPORTING	33.9	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	13.3	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	20.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	79.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	16.2	26.4
Health capacity in clinics, hospitals and community care centers	28.2	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	44.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	25.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	34.4	53.4
JEE and PVS	0	17.7
Financing	0	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	80.5	55.0
Political and security risks	100	60.4
Socio-economic resilience	76.9	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	53.3	52.9
Public health vulnerabilities	75.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



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RESPOND



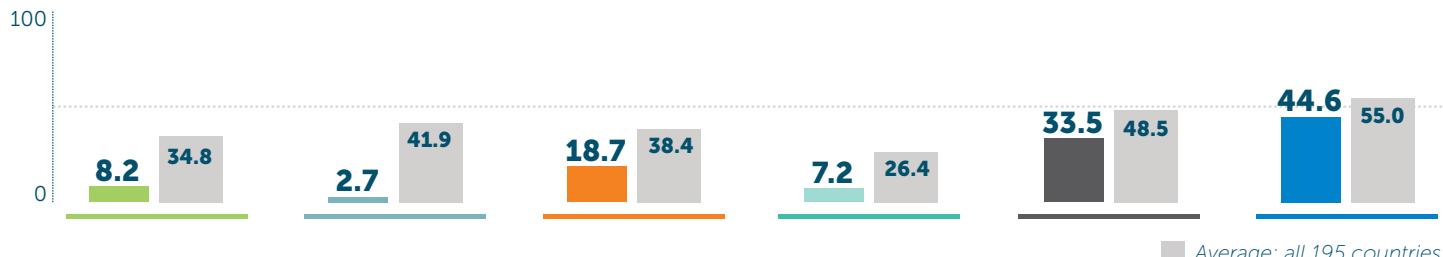
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	8.2	34.8	HEALTH SYSTEM	7.2	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	7.9	24.4
Zoonotic disease	0	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	31.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	42.1	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	2.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	33.5	48.5
Laboratory systems	0	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	10	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	18.7	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	44.6	55.0
Emergency response operation	0	23.6	Political and security risks	57.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	70.5	66.1
Risk communication	0	39.4	Infrastructure adequacy	25	49.0
Access to communications infrastructure	61.9	72.7	Environmental risks	42.7	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	28.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



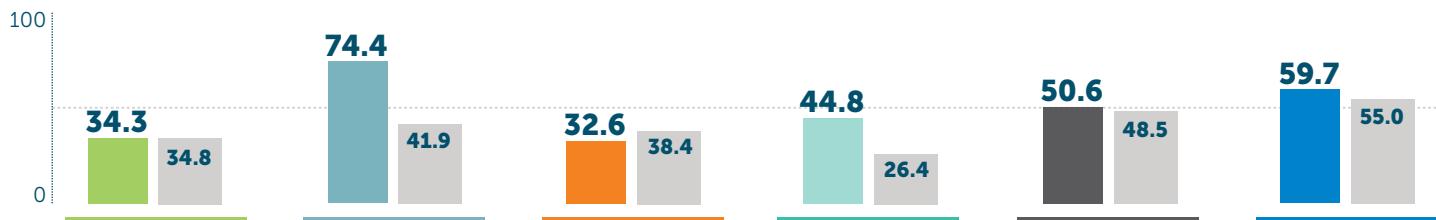
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	34.3	34.8	HEALTH SYSTEM	44.8	26.4
Antimicrobial resistance (AMR)	50	42.4	Health capacity in clinics, hospitals and community care centers	56.3	24.4
Zoonotic disease	40.5	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	0	16.0	Healthcare access	46.4	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	97.4	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	74.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	50.6	48.5
Laboratory systems	41.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	85	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	75	42.3	International commitments	87.5	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	32.6	38.4	Financing	33.3	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	59.7	55.0
Emergency response operation	33.3	23.6	Political and security risks	60.7	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	53.6	66.1
Risk communication	25	39.4	Infrastructure adequacy	75	49.0
Access to communications infrastructure	93.3	72.7	Environmental risks	41.8	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	64.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



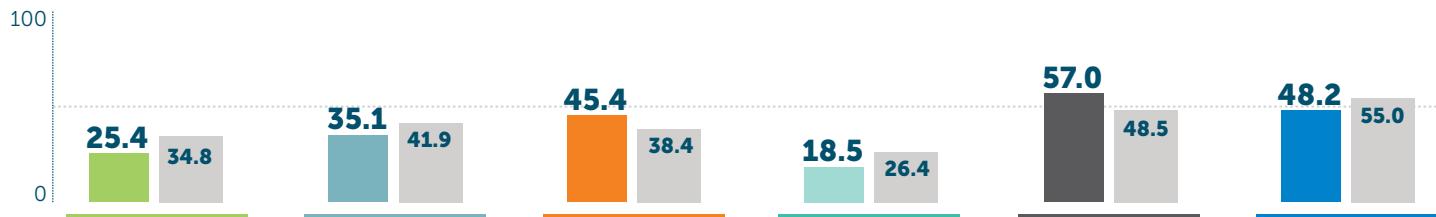
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	25.4	34.8	HEALTH SYSTEM	18.5	26.4
Antimicrobial resistance (AMR)	8.3	42.4	Health capacity in clinics, hospitals and community care centers	0.7	24.4
Zoonotic disease	34.2	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	24.2	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	50	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	35.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	57.0	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	35	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	78.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	100	17.7
RAPID RESPONSE	45.4	38.4	Financing	50	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	100	16.2	RISK ENVIRONMENT	48.2	55.0
Emergency response operation	33.3	23.6	Political and security risks	64.3	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	49.1	66.1
Risk communication	25	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	69.9	72.7	Environmental risks	68.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	27.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



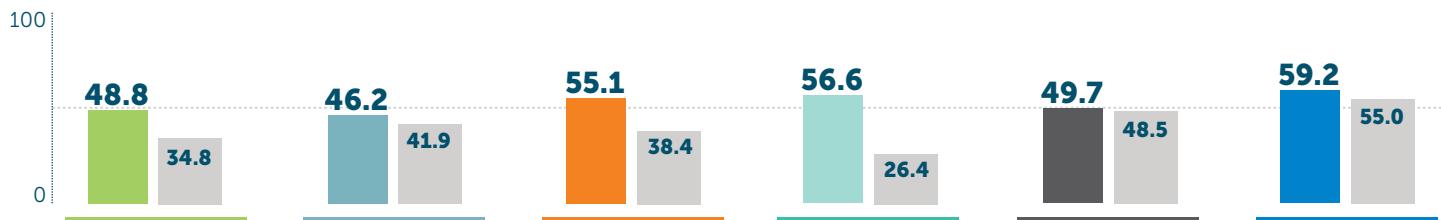
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	48.8	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	31.6	27.1
Biosecurity	44	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	88.6	85.0
DETECTION AND REPORTING	46.2	41.9
Laboratory systems	66.7	54.4
Real-time surveillance and reporting	26.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	55.1	38.4
Emergency preparedness and response planning	25	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	80.7	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	56.6	26.4
Health capacity in clinics, hospitals and community care centers	19.4	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	45.9	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	100	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	49.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	46.9	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	59.2	55.0
Political and security risks	50	60.4
Socio-economic resilience	75.9	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	48	52.9
Public health vulnerabilities	56	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



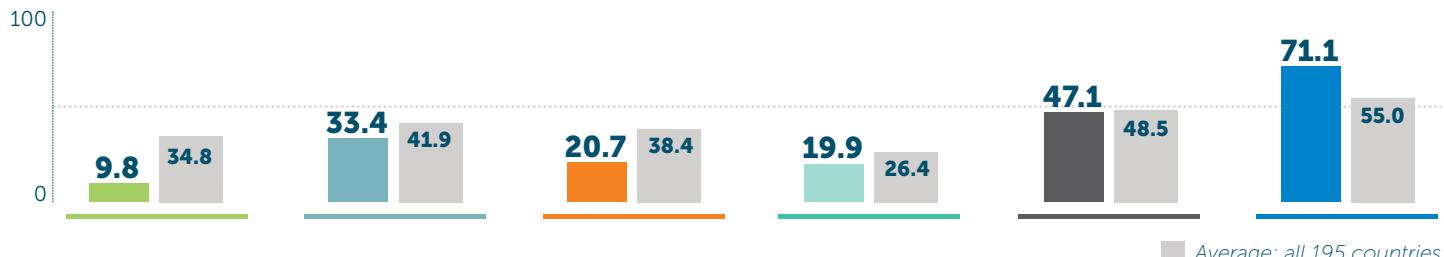
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	9.8	34.8	HEALTH SYSTEM	19.9	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	12.1	24.4
Zoonotic disease	0	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	49.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	50	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	33.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	47.1	48.5
Laboratory systems	8.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	21.7	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	37.5	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	20.7	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	71.1	55.0
Emergency response operation	0	23.6	Political and security risks	82.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	70.5	66.1
Risk communication	0	39.4	Infrastructure adequacy	83.3	49.0
Access to communications infrastructure	78.5	72.7	Environmental risks	60.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	56.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



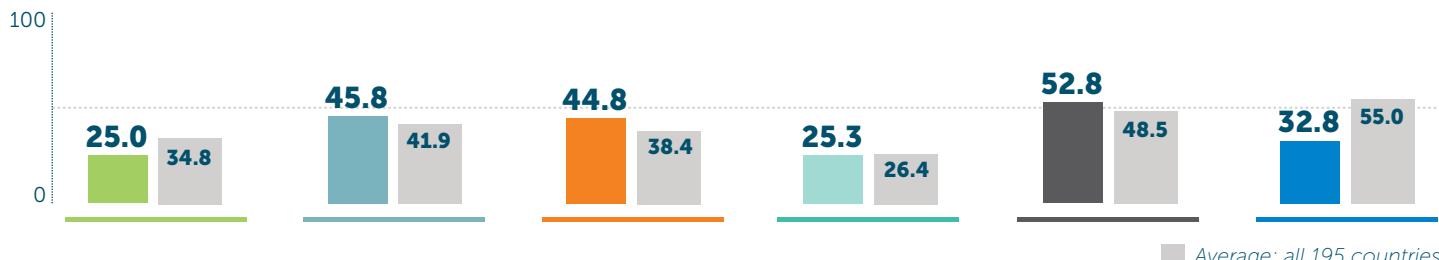
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	25.0	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	0.3	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	83.3	85.0
DETECTION AND REPORTING	45.8	41.9
Laboratory systems	25	54.4
Real-time surveillance and reporting	51.7	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	44.8	38.4
Emergency preparedness and response planning	18.8	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	100	39.4
Access to communications infrastructure	60.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	25.3	26.4
Health capacity in clinics, hospitals and community care centers	17.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	25.2	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	25	53.4
JEE and PVS	50	17.7
Financing	66.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	32.8	55.0
Political and security risks	53.6	60.4
Socio-economic resilience	28.9	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	56.9	52.9
Public health vulnerabilities	9.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



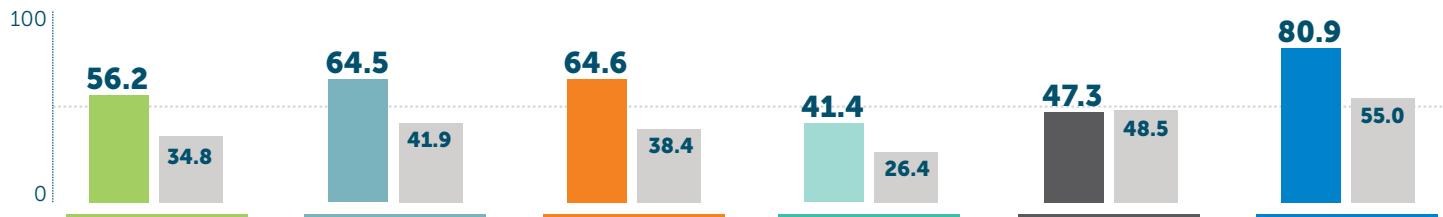
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.2	34.8	HEALTH SYSTEM	41.4	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	56.6	24.4
Zoonotic disease	41.3	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	28	16.0	Healthcare access	40.8	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	96.5	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	64.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	47.3	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	55	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	25	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	64.6	38.4	Financing	50	36.4
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	80.9	55.0
Emergency response operation	33.3	23.6	Political and security risks	89.3	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	88.4	66.1
Risk communication	100	39.4	Infrastructure adequacy	100	49.0
Access to communications infrastructure	94.2	72.7	Environmental risks	51.3	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	71.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



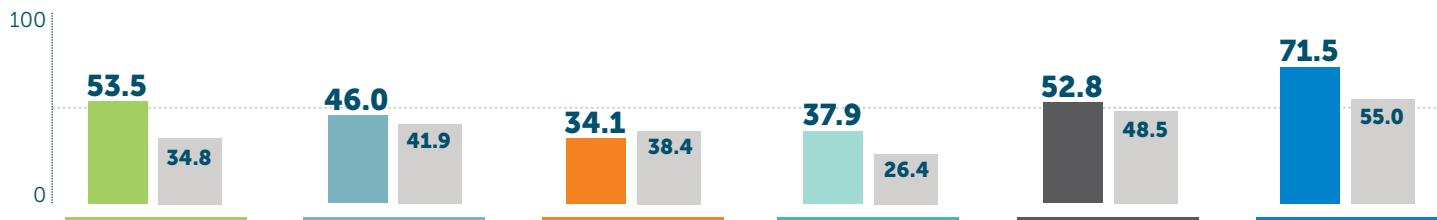
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	53.5	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	42.6	27.1
Biosecurity	58.7	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	46.0	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	66.7	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	34.1	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	89.4	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	37.9	26.4
Health capacity in clinics, hospitals and community care centers	47.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	46.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	52.8	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	71.5	55.0
Political and security risks	78.6	60.4
Socio-economic resilience	76.3	66.1
Infrastructure adequacy	75	49.0
Environmental risks	61.8	52.9
Public health vulnerabilities	64.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



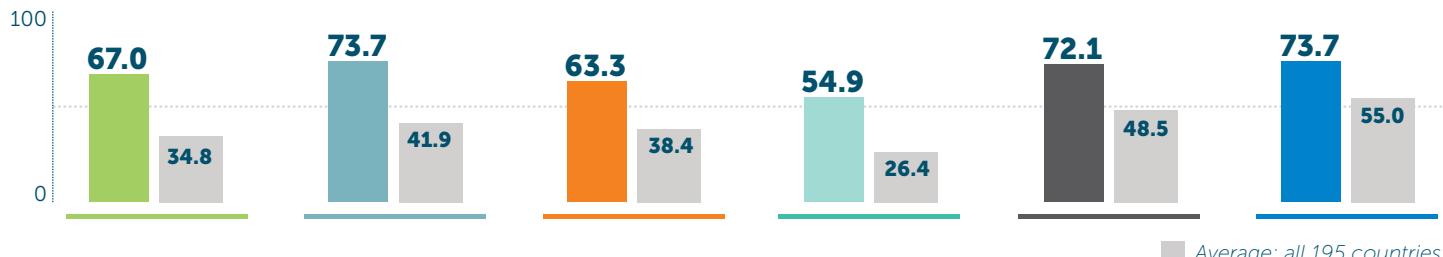
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	67.0	34.8	HEALTH SYSTEM	54.9
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	46.6
Zoonotic disease	55.9	27.1	Medical countermeasures and personnel deployment	66.7
Biosecurity	28	16.0	Healthcare access	47.6
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	50	1.7	Infection control practices and availability of equipment	50
Immunization	94.7	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	73.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	72.1
Laboratory systems	66.7	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	81.7	39.1	Cross-border agreements on public and animal health emergency response	100
Epidemiology workforce	50	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25
RAPID RESPONSE	63.3	38.4	Financing	50
Emergency preparedness and response planning	37.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	73.7
Emergency response operation	33.3	23.6	Political and security risks	82.1
Linking public health and security authorities	100	22.6	Socio-economic resilience	69.6
Risk communication	100	39.4	Infrastructure adequacy	83.3
Access to communications infrastructure	83.8	72.7	Environmental risks	61.7
Trade and travel restrictions	100	97.4	Public health vulnerabilities	69.5

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



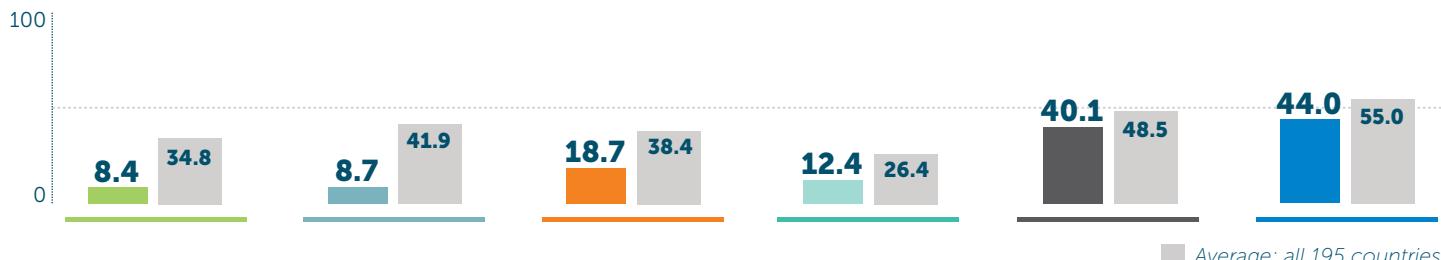
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	8.4	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	6.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	36.8	85.0
DETECTION AND REPORTING	8.7	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	18.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	61.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.4	26.4
Health capacity in clinics, hospitals and community care centers	20.8	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	40.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	15.6	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	44.0	55.0
Political and security risks	75	60.4
Socio-economic resilience	68.1	66.1
Infrastructure adequacy	8.3	49.0
Environmental risks	44.6	52.9
Public health vulnerabilities	23.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



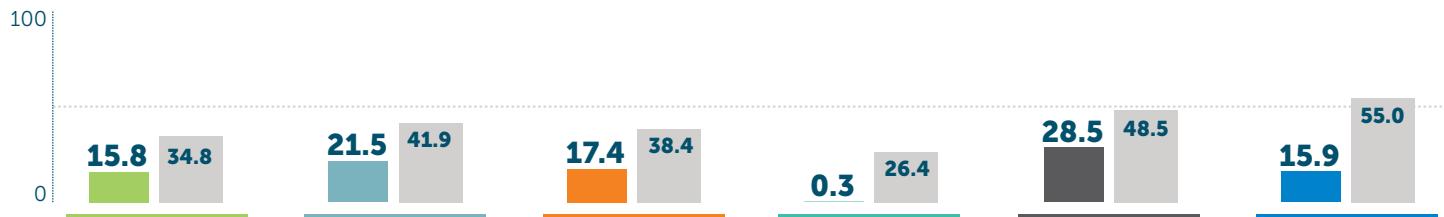
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	15.8	34.8	HEALTH SYSTEM	0.3	26.4
Antimicrobial resistance (AMR)	16.7	42.4	Health capacity in clinics, hospitals and community care centers	1.5	24.4
Zoonotic disease	1.6	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	0	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	65.8	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	21.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	28.5	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	16.7	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	6.3	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	17.4	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	15.9	55.0
Emergency response operation	0	23.6	Political and security risks	7.1	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	35	66.1
Risk communication	0	39.4	Infrastructure adequacy	0	49.0
Access to communications infrastructure	51.2	72.7	Environmental risks	38	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	4.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

South Africa

54.8 Index Score

34/195



PREVENT



DETECT



RESPOND



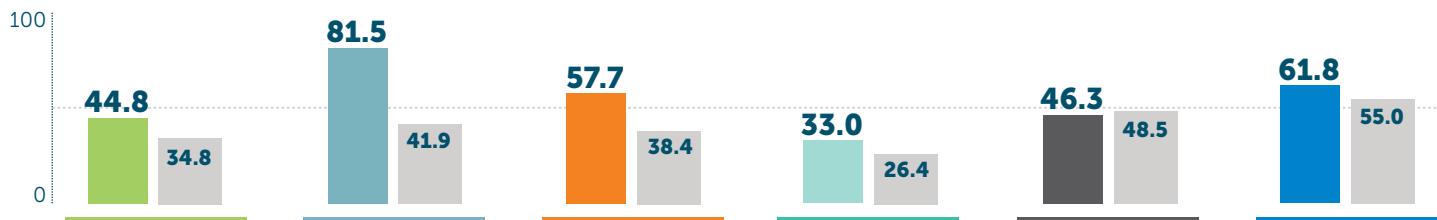
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	44.8	34.8	HEALTH SYSTEM	33.0	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	52.6	24.4
Zoonotic disease	53.9	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	8	16.0	Healthcare access	48.8	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	84.2	85.0	Capacity to test and approve new medical countermeasures	75	42.2
DETECTION AND REPORTING	81.5	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	46.3	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	78.3	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	50	42.3	International commitments	50	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	57.7	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	61.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	76.6	66.1
Risk communication	100	39.4	Infrastructure adequacy	58.3	49.0
Access to communications infrastructure	86	72.7	Environmental risks	56.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	38.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



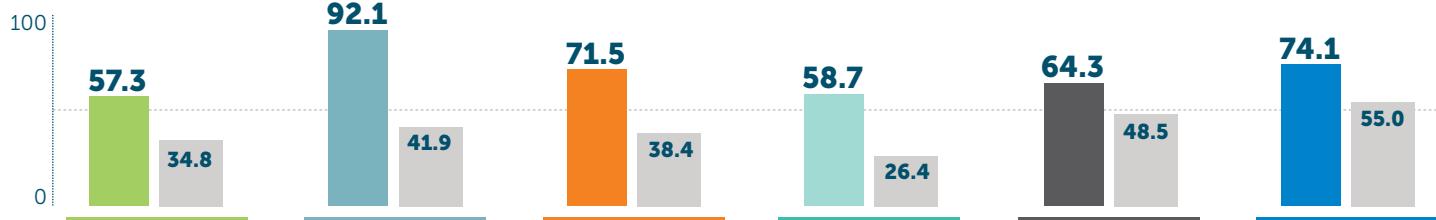
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	57.3	34.8	HEALTH SYSTEM	58.7
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	73.2
Zoonotic disease	55.2	27.1	Medical countermeasures and personnel deployment	66.7
Biosecurity	42.7	16.0	Healthcare access	43.5
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	50
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	75
DETECTION AND REPORTING	92.1	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	64.3
Laboratory systems	75	54.4	IHR reporting compliance and disaster risk reduction	100
Real-time surveillance and reporting	95	39.1	Cross-border agreements on public and animal health emergency response	50
Epidemiology workforce	100	42.3	International commitments	100
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	25
RAPID RESPONSE	71.5	38.4	Financing	50
Emergency preparedness and response planning	75	16.9	Commitment to sharing of genetic & biological data & specimens	66.7
Exercising response plans	0	16.2	RISK ENVIRONMENT	74.1
Emergency response operation	100	23.6	Political and security risks	71.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	89.3
Risk communication	75	39.4	Infrastructure adequacy	83.3
Access to communications infrastructure	93.1	72.7	Environmental risks	57.3
Trade and travel restrictions	50	97.4	Public health vulnerabilities	68.4

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



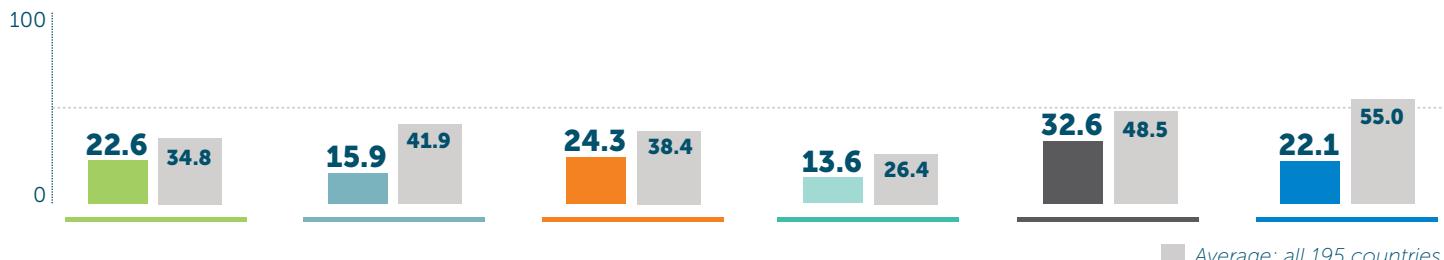
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.6	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	22.4	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	78.9	85.0
DETECTION AND REPORTING	15.9	41.9
Laboratory systems	25	54.4
Real-time surveillance and reporting	35	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	24.3	38.4
Emergency preparedness and response planning	6.3	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	43.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	13.6	26.4
Health capacity in clinics, hospitals and community care centers	27.1	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	18.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	32.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	12.5	53.4
JEE and PVS	25	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	22.1	55.0
Political and security risks	7.1	60.4
Socio-economic resilience	37.4	66.1
Infrastructure adequacy	0	49.0
Environmental risks	66.4	52.9
Public health vulnerabilities	8.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



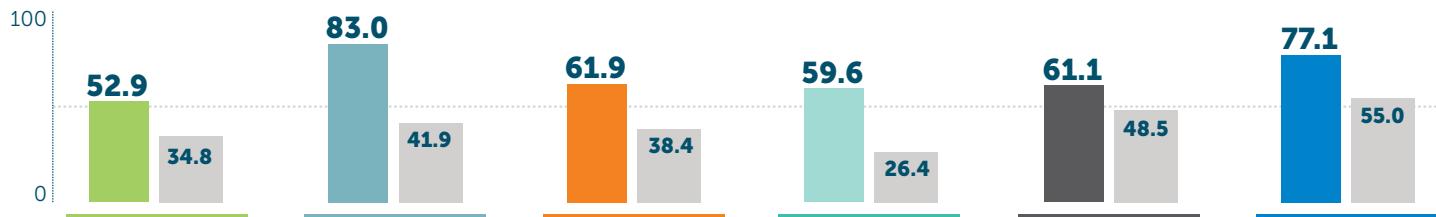
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	52.9	34.8	HEALTH SYSTEM	59.6	26.4
Antimicrobial resistance (AMR)	75	42.4	Health capacity in clinics, hospitals and community care centers	43.1	24.4
Zoonotic disease	33.1	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	48	16.0	Healthcare access	44.3	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	50	20.8
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	100	42.2
DETECTION AND REPORTING	83.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	61.1	48.5
Laboratory systems	83.3	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	100	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	96.9	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	61.9	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	77.1	55.0
Emergency response operation	33.3	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	78.2	66.1
Risk communication	100	39.4	Infrastructure adequacy	91.7	49.0
Access to communications infrastructure	88	72.7	Environmental risks	63.2	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	72.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



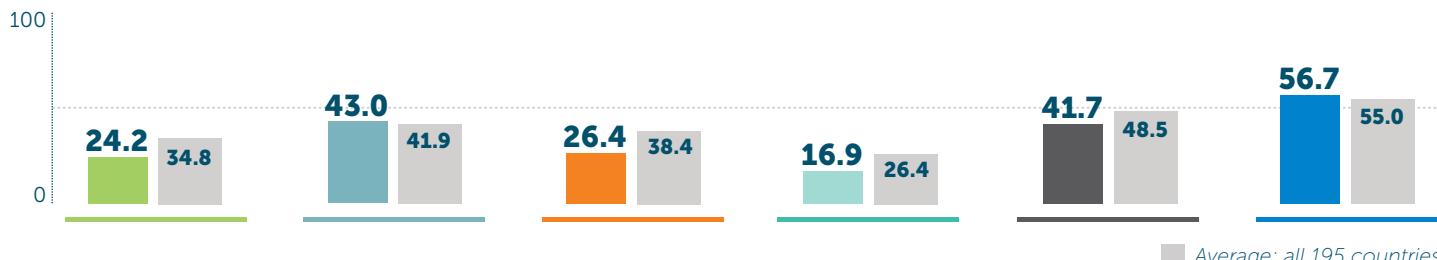
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.2	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	0	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	43.0	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	31.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	26.4	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	62.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	16.9	26.4
Health capacity in clinics, hospitals and community care centers	10.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	48	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	41.7	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	56.7	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	60	66.1
Infrastructure adequacy	50	49.0
Environmental risks	65.3	52.9
Public health vulnerabilities	52.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



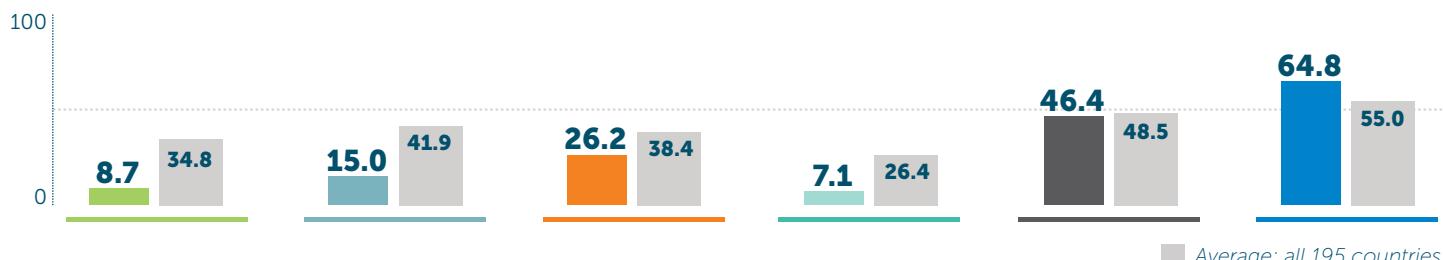
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	8.7	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	44.7	85.0
DETECTION AND REPORTING	15.0	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	26.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	87.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	7.1	26.4
Health capacity in clinics, hospitals and community care centers	11.5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	27.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	64.8	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	70.6	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	45.3	52.9
Public health vulnerabilities	55.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



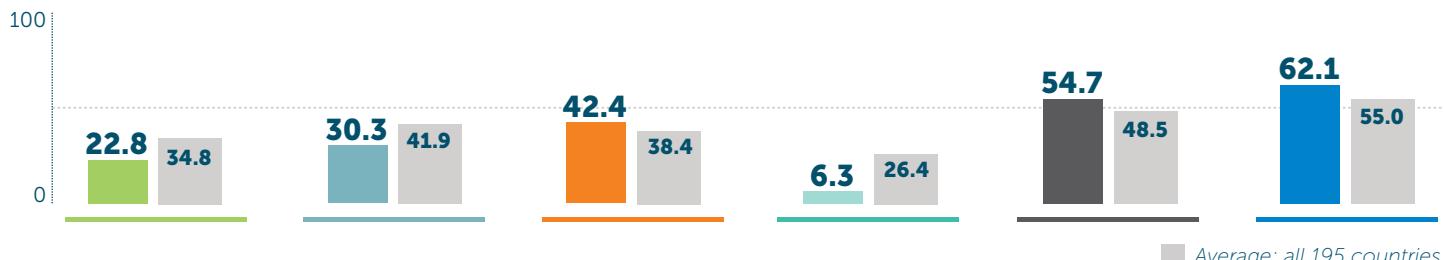
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	22.8	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	89.5	85.0
DETECTION AND REPORTING	30.3	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	33.3	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	42.4	38.4
Emergency preparedness and response planning	50	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	73.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	6.3	26.4
Health capacity in clinics, hospitals and community care centers	3.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	54.7	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	25	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	62.1	55.0
Political and security risks	78.6	60.4
Socio-economic resilience	70.6	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	48.2	52.9
Public health vulnerabilities	52.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



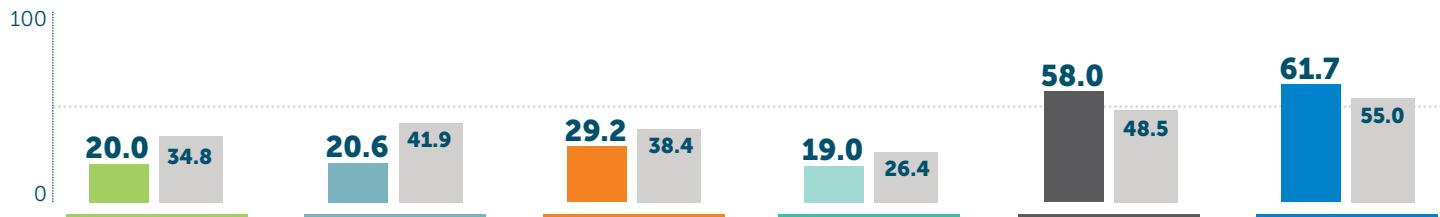
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	20.0	34.8	HEALTH SYSTEM	19.0	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	9.3	24.4
Zoonotic disease	2.5	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	49.2	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	50	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	0	42.2
DETECTION AND REPORTING	20.6	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	58.0	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	13.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	50	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	29.2	38.4	Financing	50	36.4
Emergency preparedness and response planning	25	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	61.7	55.0
Emergency response operation	0	23.6	Political and security risks	78.6	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	70.3	66.1
Risk communication	25	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	79.3	72.7	Environmental risks	40.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	48.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



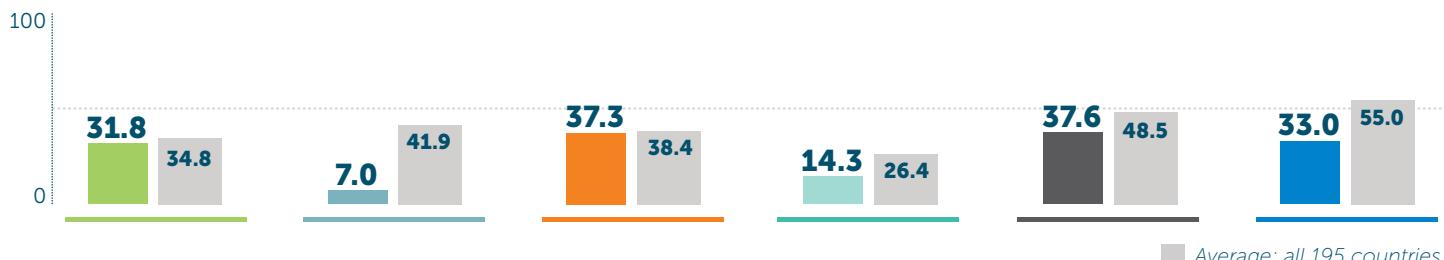
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.8	34.8	HEALTH SYSTEM	14.3	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	2.7	24.4
Zoonotic disease	2.3	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	27.7	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	92.1	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	7.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	37.6	48.5
Laboratory systems	16.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	10	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	37.3	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	33.0	55.0
Emergency response operation	33.3	23.6	Political and security risks	25	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	44.8	66.1
Risk communication	75	39.4	Infrastructure adequacy	25	49.0
Access to communications infrastructure	58.9	72.7	Environmental risks	52.3	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	22.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



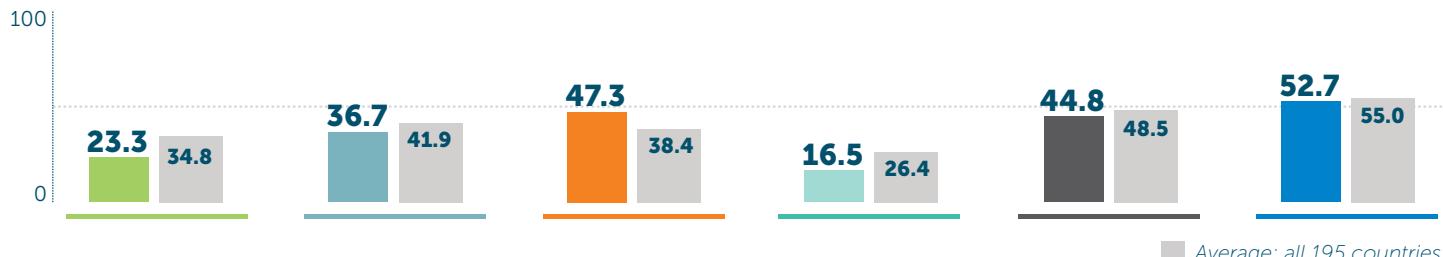
HEALTH



NORMS



RISK



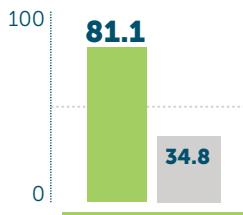
	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.3	34.8	HEALTH SYSTEM	16.5	26.4
Antimicrobial resistance (AMR)	25	42.4	Health capacity in clinics, hospitals and community care centers	11.5	24.4
Zoonotic disease	0.5	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	44.9	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	98.2	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	36.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	44.8	48.5
Laboratory systems	33.3	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	0	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	25	42.3	International commitments	40.6	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	47.3	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	12.5	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	52.7	55.0
Emergency response operation	66.7	23.6	Political and security risks	71.4	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	77.6	66.1
Risk communication	75	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	79.3	72.7	Environmental risks	31.4	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	47.1	46.9

*Average: all 195 countries

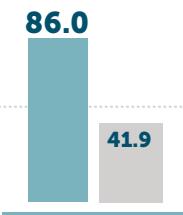
Scores are normalized (0–100, where 100 = most favorable)



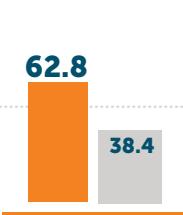
PREVENT



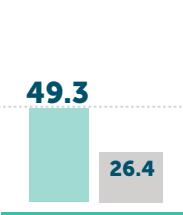
DETECT



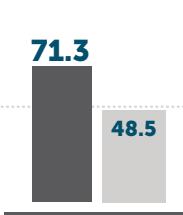
RESPOND



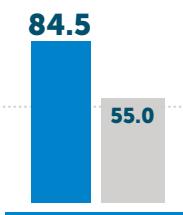
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	81.1	34.8
Antimicrobial resistance (AMR)	100	42.4
Zoonotic disease	75.1	27.1
Biosecurity	72	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	86.0	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	95	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	62.8	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	50	39.4
Access to communications infrastructure	95.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	49.3	26.4
Health capacity in clinics, hospitals and community care centers	48.4	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	44	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	71.3	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	0	17.7
Financing	66.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	84.5	55.0
Political and security risks	89.3	60.4
Socio-economic resilience	99.7	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	57.6	52.9
Public health vulnerabilities	81.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



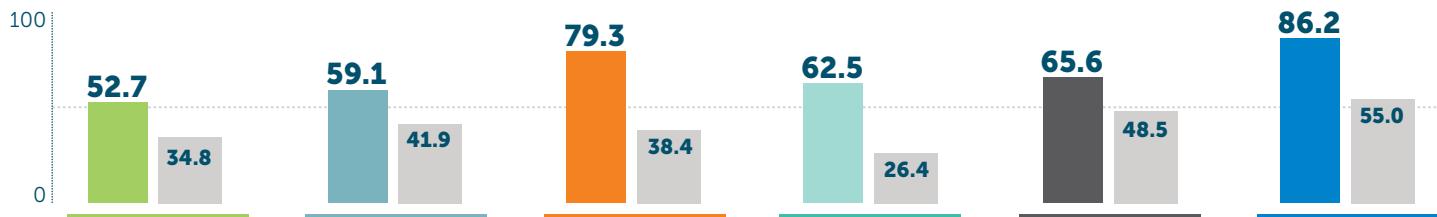
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	52.7	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	55.6	27.1
Biosecurity	24	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	59.1	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	58.3	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	79.3	38.4
Emergency preparedness and response planning	87.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	100	22.6
Risk communication	100	39.4
Access to communications infrastructure	93.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	62.5	26.4
Health capacity in clinics, hospitals and community care centers	57.6	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	33.3	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	65.6	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	86.2	55.0
Political and security risks	89.3	60.4
Socio-economic resilience	100	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	63.9	52.9
Public health vulnerabilities	83.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



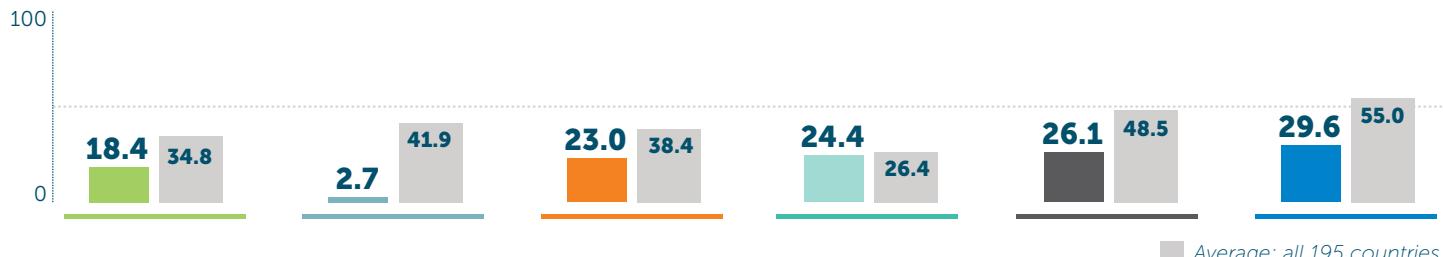
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	18.4	34.8	HEALTH SYSTEM	24.4	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	7.8	24.4
Zoonotic disease	8	27.1	Medical countermeasures and personnel deployment	33.3	21.2
Biosecurity	0	16.0	Healthcare access	32.6	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	50	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	86.8	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	2.7	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	26.1	48.5
Laboratory systems	0	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	10	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	0	42.3	International commitments	18.8	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	23.0	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	29.6	55.0
Emergency response operation	0	23.6	Political and security risks	0	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	34.9	66.1
Risk communication	50	39.4	Infrastructure adequacy	8.3	49.0
Access to communications infrastructure	23.9	72.7	Environmental risks	61.9	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	49.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



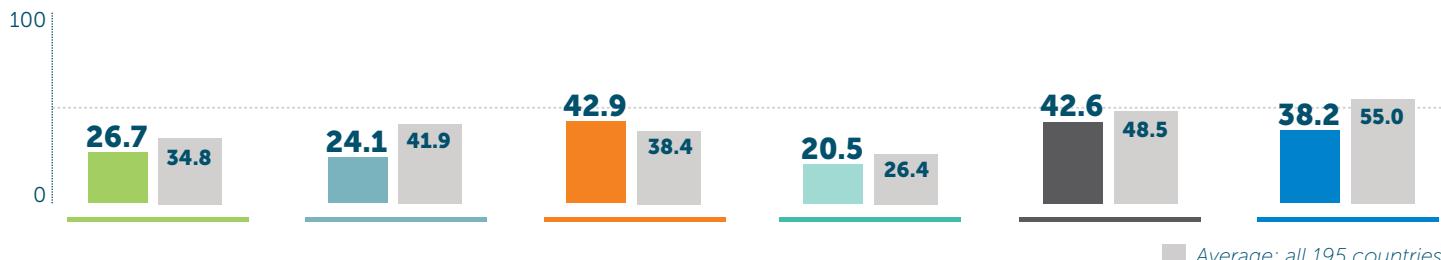
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	26.7	34.8
Antimicrobial resistance (AMR)	16.7	42.4
Zoonotic disease	22.5	27.1
Biosecurity	4	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	99.1	85.0
DETECTION AND REPORTING	24.1	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	42.9	38.4
Emergency preparedness and response planning	50	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	57.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	20.5	26.4
Health capacity in clinics, hospitals and community care centers	16.6	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	32	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	42.6	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.2	55.0
Political and security risks	35.7	60.4
Socio-economic resilience	52.5	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	46.8	52.9
Public health vulnerabilities	41.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



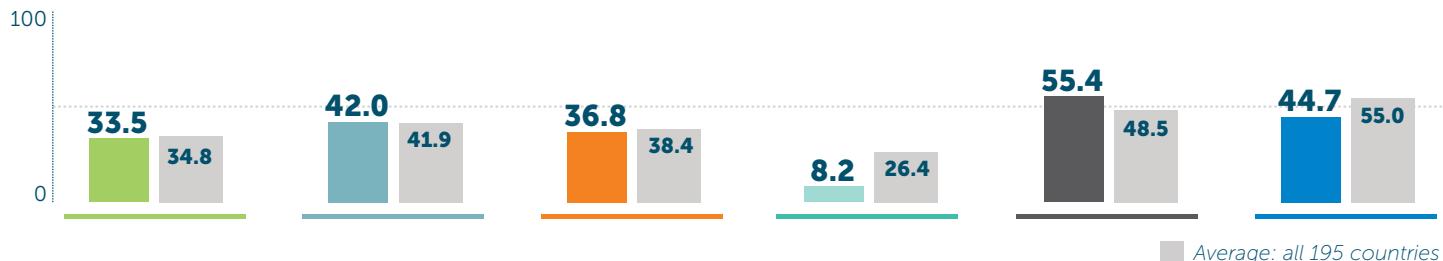
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	33.5	34.8
Antimicrobial resistance (AMR)	41.7	42.4
Zoonotic disease	40.9	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	42.0	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	13.3	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	36.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	44.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	8.2	26.4
Health capacity in clinics, hospitals and community care centers	1.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	26.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	55.4	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	68.8	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	44.7	55.0
Political and security risks	60.7	60.4
Socio-economic resilience	53.9	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	61.8	52.9
Public health vulnerabilities	16.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



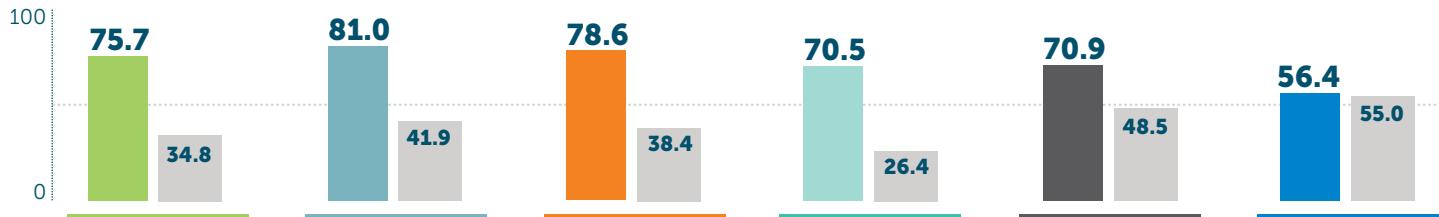
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	75.7	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	67.5	27.1
Biosecurity	69.3	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	100	85.0
DETECTION AND REPORTING	81.0	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	76.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	78.6	38.4
Emergency preparedness and response planning	87.5	16.9
Exercising response plans	50	16.2
Emergency response operation	66.7	23.6
Linking public health and security authorities	100	22.6
Risk communication	100	39.4
Access to communications infrastructure	88	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	70.5	26.4
Health capacity in clinics, hospitals and community care centers	48.1	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	99.3	38.4
Communications with healthcare workers during a public health emergency	100	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	70.9	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	90.6	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	56.4	55.0
Political and security risks	39.3	60.4
Socio-economic resilience	69.3	66.1
Infrastructure adequacy	50	49.0
Environmental risks	72.7	52.9
Public health vulnerabilities	55.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



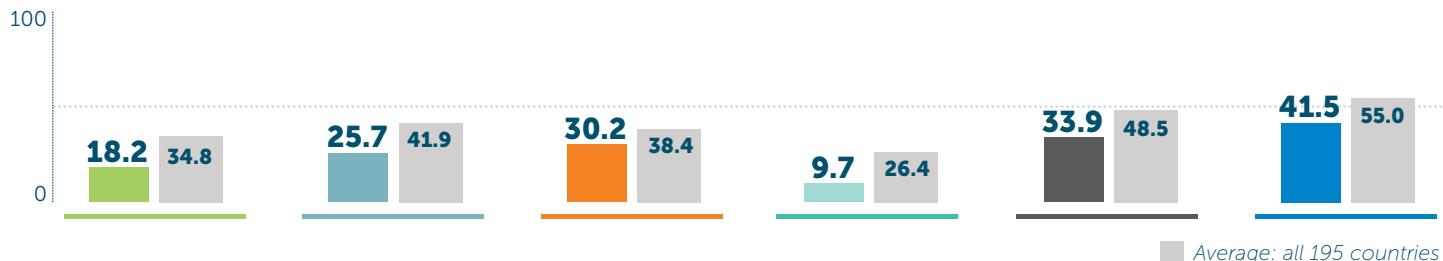
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	18.2	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	8.8	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	43.9	85.0
DETECTION AND REPORTING	25.7	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	23.3	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	30.2	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	74.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	9.7	26.4
Health capacity in clinics, hospitals and community care centers	11.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	42	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	33.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	41.5	55.0
Political and security risks	57.1	60.4
Socio-economic resilience	64.9	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	40.6	52.9
Public health vulnerabilities	28.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



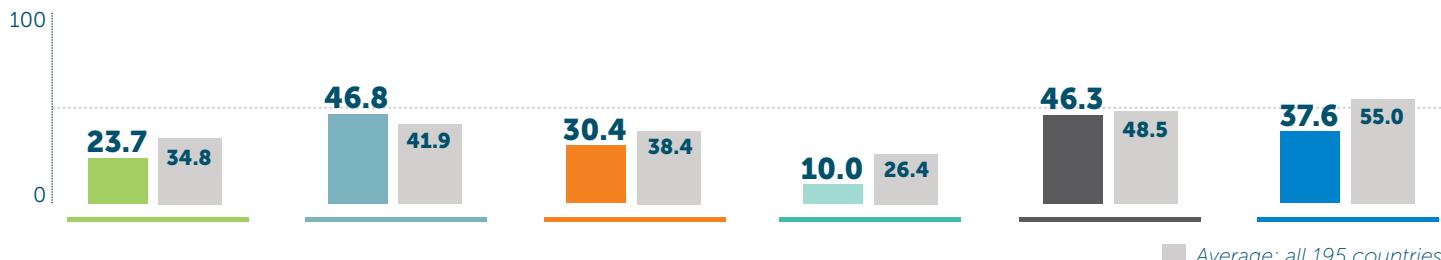
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.7	34.8
Antimicrobial resistance (AMR)	8.3	42.4
Zoonotic disease	23.3	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	93	85.0
DETECTION AND REPORTING	46.8	41.9
Laboratory systems	75	54.4
Real-time surveillance and reporting	6.7	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	30.4	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	56.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	10.0	26.4
Health capacity in clinics, hospitals and community care centers	1.3	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	22.8	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	46.3	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	25	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	37.6	55.0
Political and security risks	46.4	60.4
Socio-economic resilience	37.2	66.1
Infrastructure adequacy	25	49.0
Environmental risks	68.3	52.9
Public health vulnerabilities	14.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



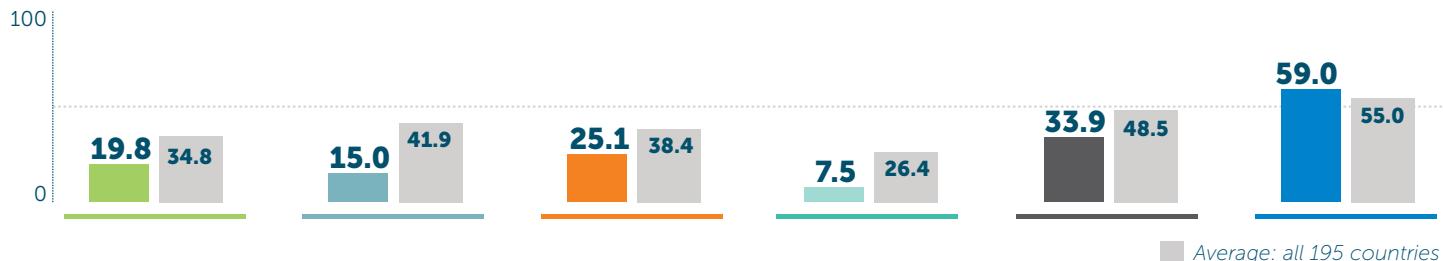
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	19.8	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	1.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	15.0	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	25.1	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	68.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	7.5	26.4
Health capacity in clinics, hospitals and community care centers	8.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	33.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	59.0	55.0
Political and security risks	67.9	60.4
Socio-economic resilience	70.2	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	48.2	52.9
Public health vulnerabilities	49	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



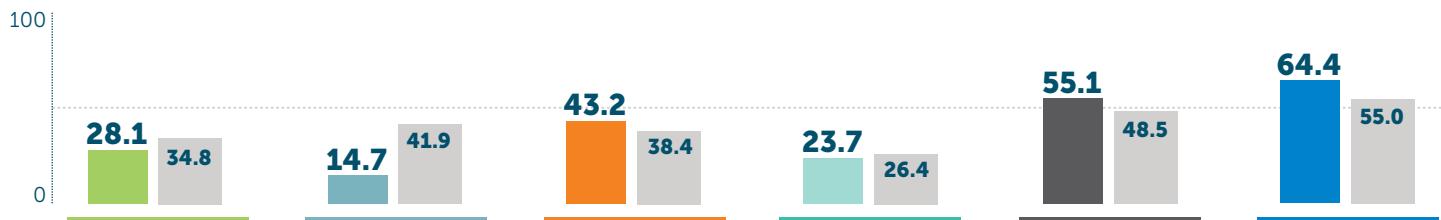
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	28.1	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	8.6	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	94.7	85.0
DETECTION AND REPORTING	14.7	41.9
Laboratory systems	16.7	54.4
Real-time surveillance and reporting	15	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	43.2	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	91.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	23.7	26.4
Health capacity in clinics, hospitals and community care centers	36.9	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	27.1	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	55.1	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	28.1	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	64.4	55.0
Political and security risks	71.4	60.4
Socio-economic resilience	82.3	66.1
Infrastructure adequacy	58.3	49.0
Environmental risks	55.8	52.9
Public health vulnerabilities	53.9	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



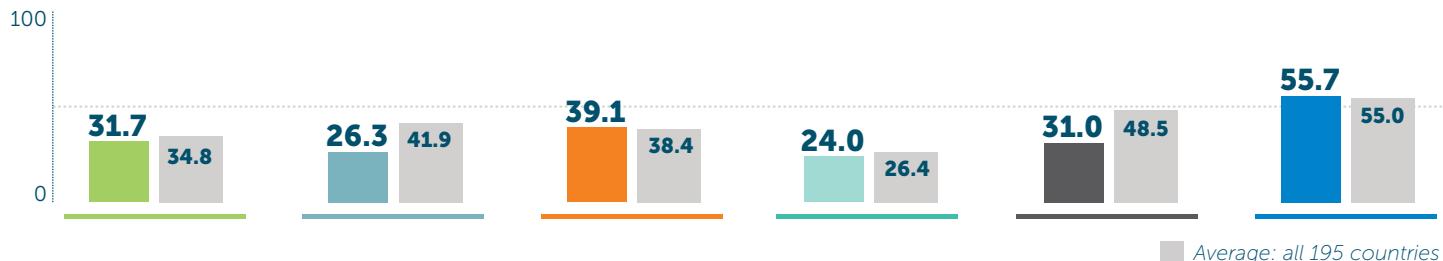
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	31.7	34.8	HEALTH SYSTEM	24.0	26.4
Antimicrobial resistance (AMR)	41.7	42.4	Health capacity in clinics, hospitals and community care centers	8.9	24.4
Zoonotic disease	27.8	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	4	16.0	Healthcare access	42.8	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	50	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	99.1	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	26.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	31.0	48.5
Laboratory systems	41.7	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	10	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	50	42.3	International commitments	25	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	25	17.7
RAPID RESPONSE	39.1	38.4	Financing	16.7	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	55.7	55.0
Emergency response operation	33.3	23.6	Political and security risks	35.7	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	67.9	66.1
Risk communication	0	39.4	Infrastructure adequacy	66.7	49.0
Access to communications infrastructure	78.9	72.7	Environmental risks	57.3	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	53.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



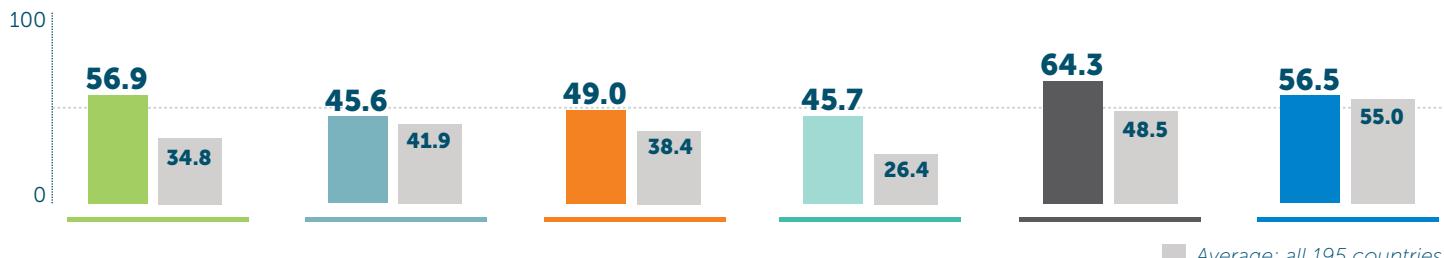
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	56.9	34.8
Antimicrobial resistance (AMR)	58.3	42.4
Zoonotic disease	48	27.1
Biosecurity	24	16.0
Biosafety	100	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	45.6	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	41.7	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	49.0	38.4
Emergency preparedness and response planning	62.5	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	74.3	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	45.7	26.4
Health capacity in clinics, hospitals and community care centers	10.7	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	48.2	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	64.3	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	100	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	56.5	55.0
Political and security risks	39.3	60.4
Socio-economic resilience	72	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	47.6	52.9
Public health vulnerabilities	58.4	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



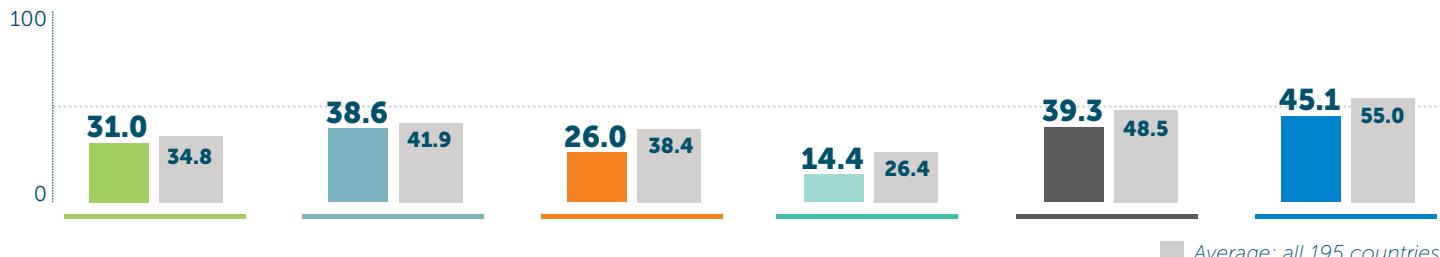
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.0	34.8
Antimicrobial resistance (AMR)	41.7	42.4
Zoonotic disease	8.5	27.1
Biosecurity	20	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	38.6	41.9
Laboratory systems	75	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	26.0	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	75.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	14.4	26.4
Health capacity in clinics, hospitals and community care centers	22.2	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	27.2	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	39.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	45.1	55.0
Political and security risks	46.4	60.4
Socio-economic resilience	52	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	45.9	52.9
Public health vulnerabilities	48.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



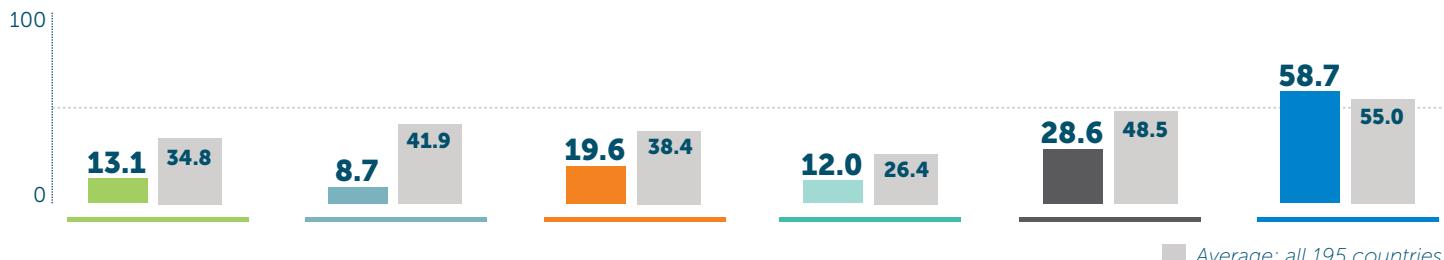
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	13.1	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	0	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	46.5	85.0
DETECTION AND REPORTING	8.7	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	19.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	68.9	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.0	26.4
Health capacity in clinics, hospitals and community care centers	17.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	32	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	28.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	12.5	53.4
JEE and PVS	0	17.7
Financing	33.3	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	58.7	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	70.5	66.1
Infrastructure adequacy	50	49.0
Environmental risks	33.6	52.9
Public health vulnerabilities	48.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



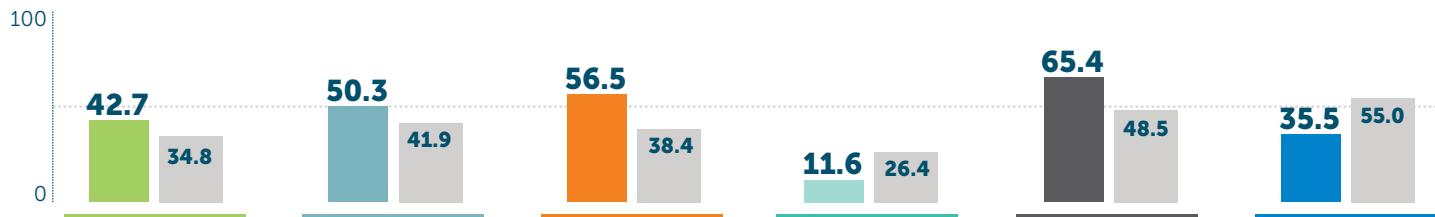
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*	COUNTRY SCORE	AVERAGE SCORE*	
PREVENTION	42.7	34.8	HEALTH SYSTEM	11.6	26.4
Antimicrobial resistance (AMR)	58.3	42.4	Health capacity in clinics, hospitals and community care centers	1.4	24.4
Zoonotic disease	47.4	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	28.3	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	86	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	50.3	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	65.4	48.5
Laboratory systems	75	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	20	39.1	Cross-border agreements on public and animal health emergency response	50	54.4
Epidemiology workforce	100	42.3	International commitments	78.1	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	56.5	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	50	16.2	RISK ENVIRONMENT	35.5	55.0
Emergency response operation	33.3	23.6	Political and security risks	28.6	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	43.4	66.1
Risk communication	75	39.4	Infrastructure adequacy	33.3	49.0
Access to communications infrastructure	56.7	72.7	Environmental risks	69.6	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	9.1	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



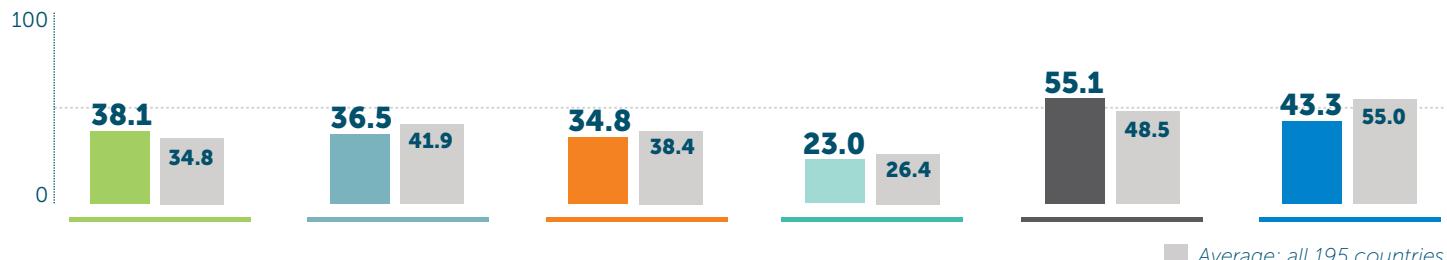
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	38.1	34.8
Antimicrobial resistance (AMR)	0	42.4
Zoonotic disease	42.8	27.1
Biosecurity	32	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	88.6	85.0
DETECTION AND REPORTING	36.5	41.9
Laboratory systems	50	54.4
Real-time surveillance and reporting	40	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	34.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	84.8	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	23.0	26.4
Health capacity in clinics, hospitals and community care centers	28.2	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	75	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	55.1	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	96.9	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	43.3	55.0
Political and security risks	14.3	60.4
Socio-economic resilience	63.8	66.1
Infrastructure adequacy	41.7	49.0
Environmental risks	47.6	52.9
Public health vulnerabilities	53.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

United Arab Emirates

46.7 Index Score

56/195



PREVENT



DETECT



RESPOND



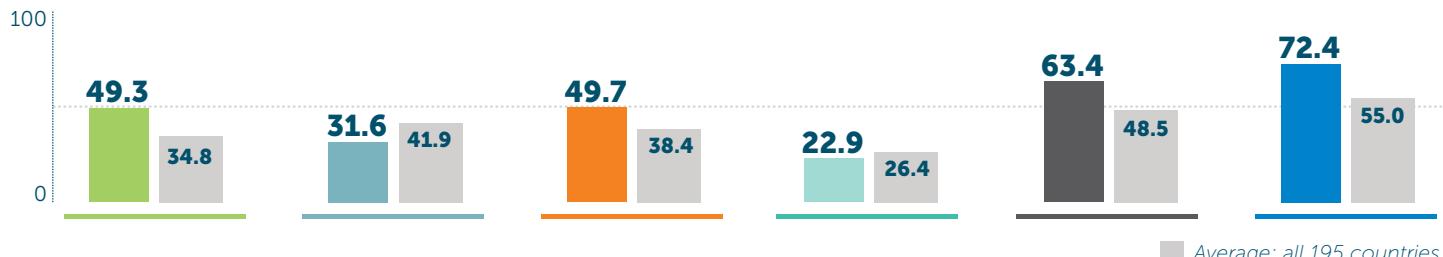
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	49.3	34.8
Antimicrobial resistance (AMR)	83.3	42.4
Zoonotic disease	47.3	27.1
Biosecurity	24	16.0
Biosafety	25	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	100	85.0
DETECTION AND REPORTING	31.6	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	36.7	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	49.7	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	0	16.2
Emergency response operation	66.7	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	99.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	22.9	26.4
Health capacity in clinics, hospitals and community care centers	32.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	46.6	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	63.4	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	93.8	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	72.4	55.0
Political and security risks	75	60.4
Socio-economic resilience	72.5	66.1
Infrastructure adequacy	91.7	49.0
Environmental risks	57.8	52.9
Public health vulnerabilities	63.1	46.9

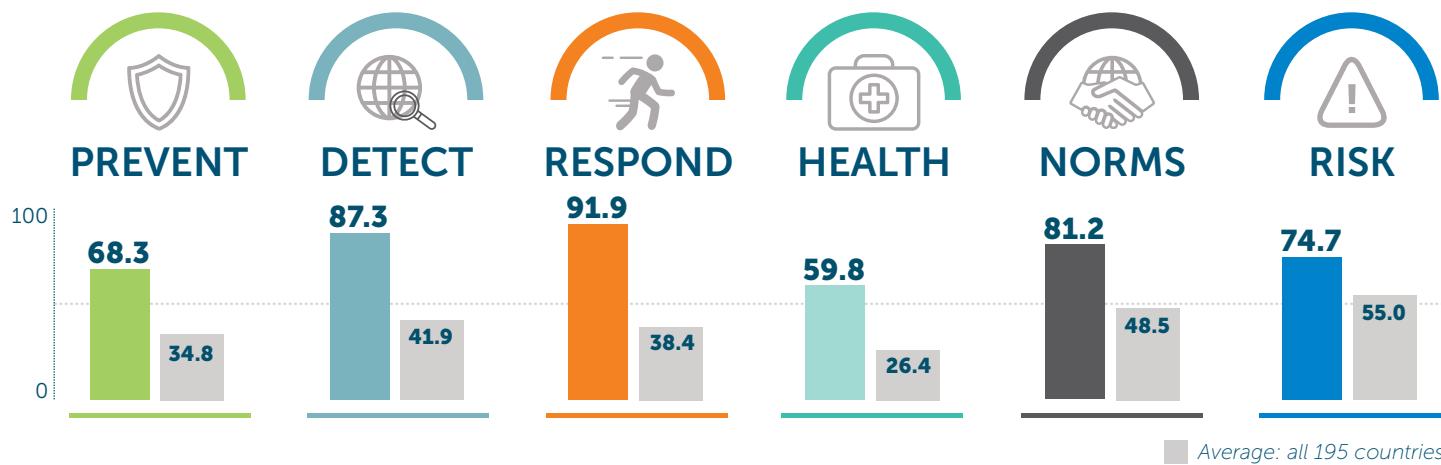
*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)

United Kingdom

77.9 Index Score

2/195

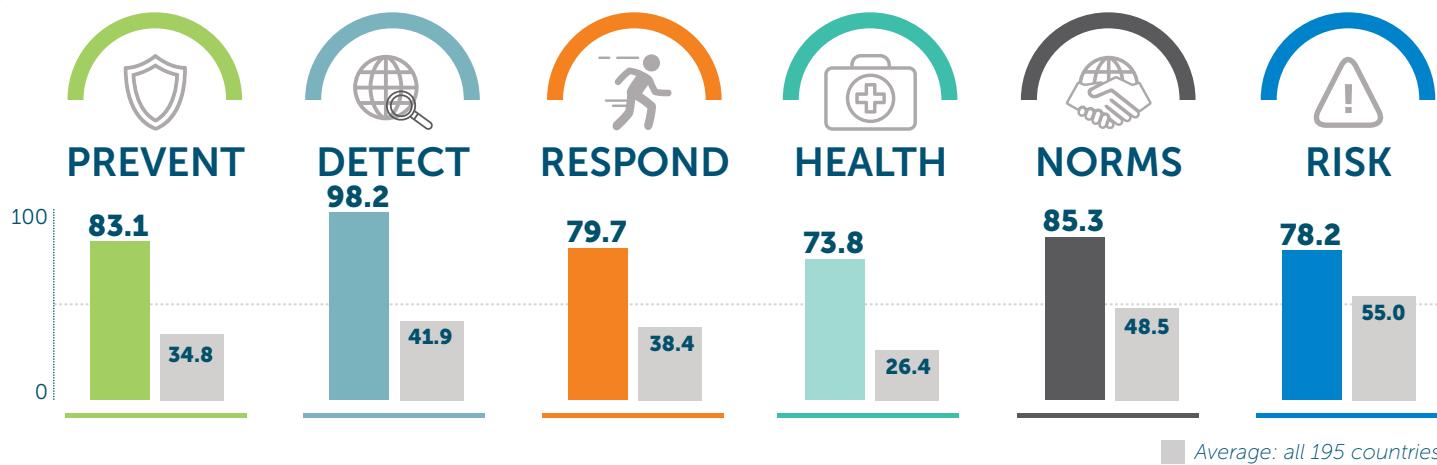


	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	68.3	34.8
Antimicrobial resistance (AMR)	100	42.4
Zoonotic disease	55.6	27.1
Biosecurity	69.3	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	33.3	1.7
Immunization	93.9	85.0
DETECTION AND REPORTING	87.3	41.9
Laboratory systems	100	54.4
Real-time surveillance and reporting	100	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	91.9	38.4
Emergency preparedness and response planning	87.5	16.9
Exercising response plans	100	16.2
Emergency response operation	66.7	23.6
Linking public health and security authorities	100	22.6
Risk communication	100	39.4
Access to communications infrastructure	95.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	59.8	26.4
Health capacity in clinics, hospitals and community care centers	59.6	24.4
Medical countermeasures and personnel deployment	66.7	21.2
Healthcare access	45.3	38.4
Communications with healthcare workers during a public health emergency	50	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	100	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	81.2	48.5
IHR reporting compliance and disaster risk reduction	100	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	100	53.4
JEE and PVS	25	17.7
Financing	66.7	36.4
Commitment to sharing of genetic & biological data & specimens	100	68.1
RISK ENVIRONMENT	74.7	55.0
Political and security risks	82.1	60.4
Socio-economic resilience	88	66.1
Infrastructure adequacy	66.7	49.0
Environmental risks	59.6	52.9
Public health vulnerabilities	75.2	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	83.1	34.8	HEALTH SYSTEM	73.8	26.4
Antimicrobial resistance (AMR)	83.3	42.4	Health capacity in clinics, hospitals and community care centers	60.4	24.4
Zoonotic disease	77	27.1	Medical countermeasures and personnel deployment	66.7	21.2
Biosecurity	89.3	16.0	Healthcare access	25.3	38.4
Biosafety	100	22.8	Communications with healthcare workers during a public health emergency	100	15.1
Dual-use research and culture of responsible science	50	1.7	Infection control practices and availability of equipment	100	20.8
Immunization	93.9	85.0	Capacity to test and approve new medical countermeasures	100	42.2
DETECTION AND REPORTING	98.2	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	85.3	48.5
Laboratory systems	100	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	93.3	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	100	42.3	International commitments	100	53.4
Data integration between human/animal/environmental health sectors	100	29.7	JEE and PVS	50	17.7
RAPID RESPONSE	79.7	38.4	Financing	66.7	36.4
Emergency preparedness and response planning	100	16.9	Commitment to sharing of genetic & biological data & specimens	100	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	78.2	55.0
Emergency response operation	66.7	23.6	Political and security risks	75	60.4
Linking public health and security authorities	100	22.6	Socio-economic resilience	75.7	66.1
Risk communication	100	39.4	Infrastructure adequacy	91.7	49.0
Access to communications infrastructure	91.4	72.7	Environmental risks	51.7	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	93.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



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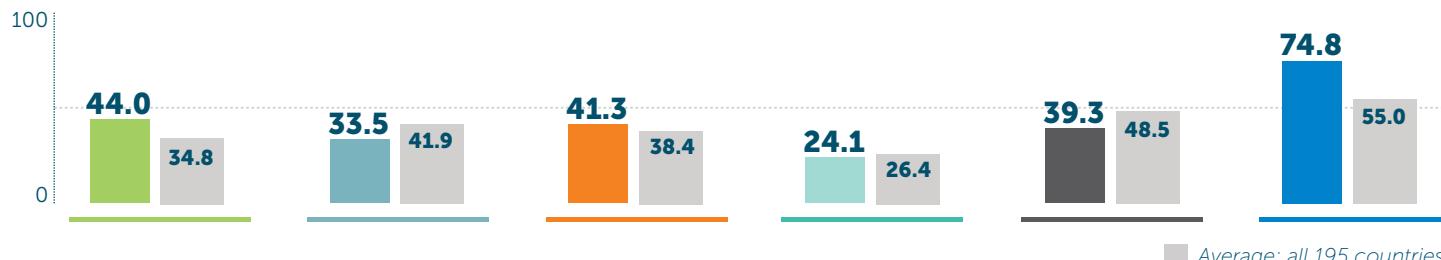
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	44.0	34.8
Antimicrobial resistance (AMR)	75	42.4
Zoonotic disease	73.2	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	96.5	85.0
DETECTION AND REPORTING	33.5	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	45	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	41.3	38.4
Emergency preparedness and response planning	37.5	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	75	39.4
Access to communications infrastructure	89.6	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	24.1	26.4
Health capacity in clinics, hospitals and community care centers	17.7	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	30.9	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	39.3	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	16.7	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	74.8	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	93.8	66.1
Infrastructure adequacy	75	49.0
Environmental risks	57.1	52.9
Public health vulnerabilities	60.6	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



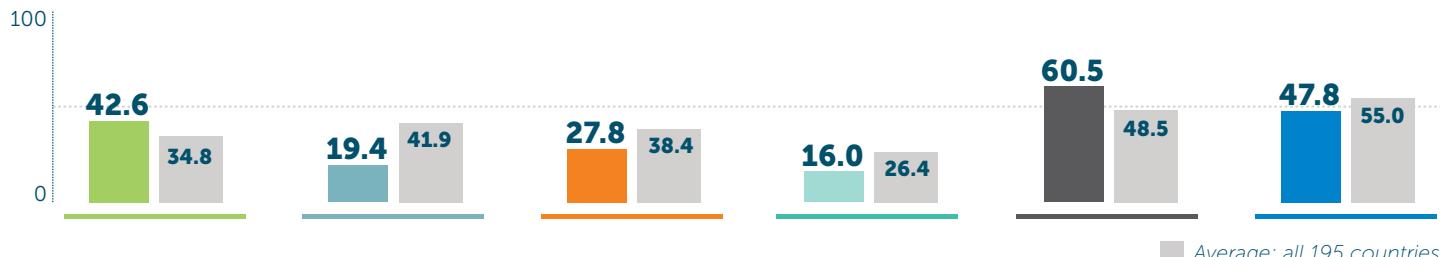
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	42.6	34.8	HEALTH SYSTEM	16.0	26.4
Antimicrobial resistance (AMR)	66.7	42.4	Health capacity in clinics, hospitals and community care centers	22.7	24.4
Zoonotic disease	24	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	31.8	38.4
Biosafety	50	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	100	85.0	Capacity to test and approve new medical countermeasures	50	42.2
DETECTION AND REPORTING	19.4	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	60.5	48.5
Laboratory systems	50	54.4	IHR reporting compliance and disaster risk reduction	100	62.3
Real-time surveillance and reporting	0	39.1	Cross-border agreements on public and animal health emergency response	100	54.4
Epidemiology workforce	25	42.3	International commitments	43.8	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	27.8	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	47.8	55.0
Emergency response operation	33.3	23.6	Political and security risks	50	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	62.8	66.1
Risk communication	25	39.4	Infrastructure adequacy	16.7	49.0
Access to communications infrastructure	54.6	72.7	Environmental risks	62.4	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	49.8	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



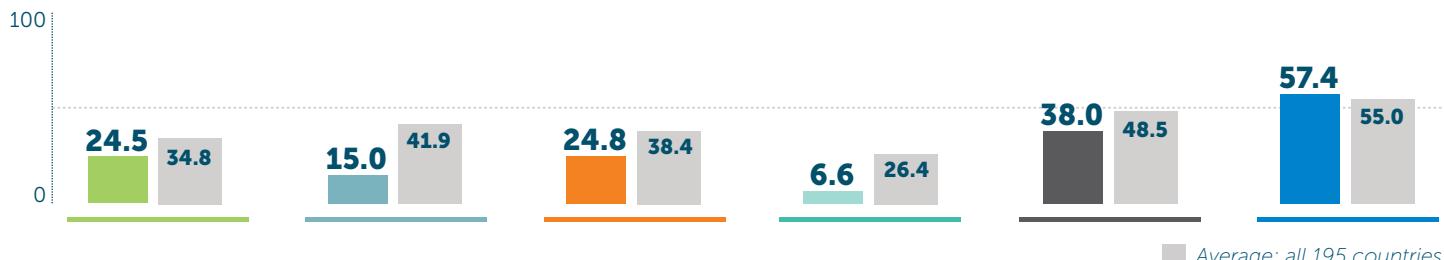
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.5	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	0.7	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	83.3	85.0
DETECTION AND REPORTING	15.0	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	25	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	24.8	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	66.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	6.6	26.4
Health capacity in clinics, hospitals and community care centers	5	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	31.3	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	0	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	38.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	57.4	55.0
Political and security risks	85.7	60.4
Socio-economic resilience	76.6	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	55.8	52.9
Public health vulnerabilities	34.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



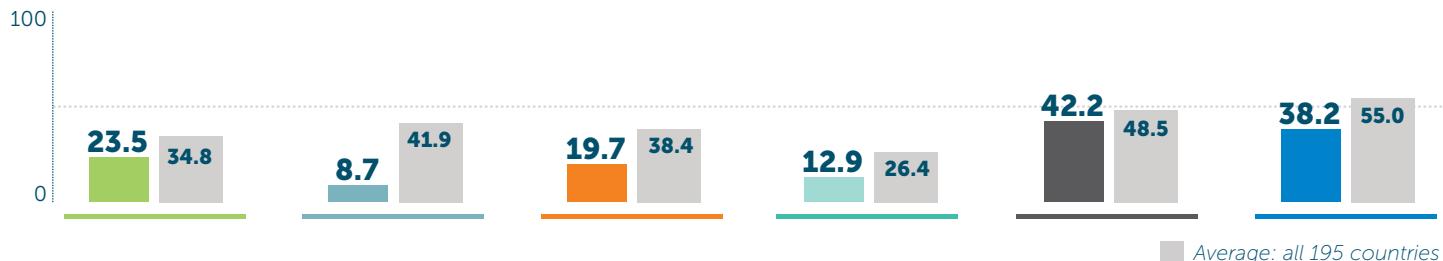
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	23.5	34.8
Antimicrobial resistance (AMR)	25	42.4
Zoonotic disease	2.8	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	8.7	41.9
Laboratory systems	33.3	54.4
Real-time surveillance and reporting	0	39.1
Epidemiology workforce	0	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	19.7	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	0	23.6
Linking public health and security authorities	0	22.6
Risk communication	0	39.4
Access to communications infrastructure	70.2	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	12.9	26.4
Health capacity in clinics, hospitals and community care centers	6.4	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	42.2	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	31.3	53.4
JEE and PVS	0	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	38.2	55.0
Political and security risks	28.6	60.4
Socio-economic resilience	45.2	66.1
Infrastructure adequacy	16.7	49.0
Environmental risks	46.1	52.9
Public health vulnerabilities	56.3	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



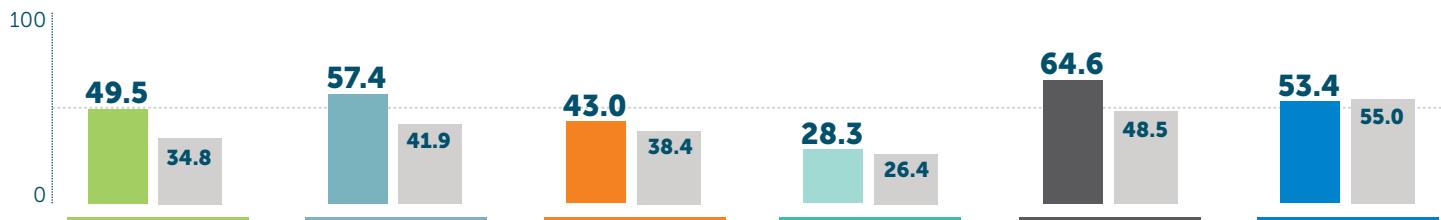
HEALTH



NORMS



RISK



Average: all 195 countries

	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	49.5	34.8
Antimicrobial resistance (AMR)	66.7	42.4
Zoonotic disease	42.9	27.1
Biosecurity	24	16.0
Biosafety	50	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	98.2	85.0
DETECTION AND REPORTING	57.4	41.9
Laboratory systems	83.3	54.4
Real-time surveillance and reporting	38.3	39.1
Epidemiology workforce	100	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	43.0	38.4
Emergency preparedness and response planning	12.5	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	50	39.4
Access to communications infrastructure	70.5	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	28.3	26.4
Health capacity in clinics, hospitals and community care centers	24.1	24.4
Medical countermeasures and personnel deployment	0	21.2
Healthcare access	47.7	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	50	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	64.6	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	100	54.4
International commitments	78.1	53.4
JEE and PVS	50	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	53.4	55.0
Political and security risks	64.3	60.4
Socio-economic resilience	61.5	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	61.1	52.9
Public health vulnerabilities	47.5	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



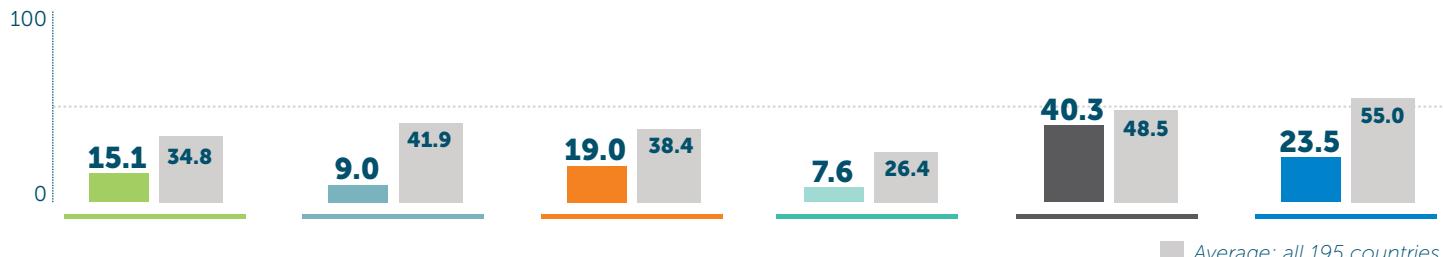
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*		COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	15.1	34.8	HEALTH SYSTEM	7.6	26.4
Antimicrobial resistance (AMR)	0	42.4	Health capacity in clinics, hospitals and community care centers	2.3	24.4
Zoonotic disease	0.3	27.1	Medical countermeasures and personnel deployment	0	21.2
Biosecurity	0	16.0	Healthcare access	22.3	38.4
Biosafety	0	22.8	Communications with healthcare workers during a public health emergency	0	15.1
Dual-use research and culture of responsible science	0	1.7	Infection control practices and availability of equipment	0	20.8
Immunization	77.2	85.0	Capacity to test and approve new medical countermeasures	25	42.2
DETECTION AND REPORTING	9.0	41.9	COMPLIANCE WITH INTERNATIONAL NORMS	40.3	48.5
Laboratory systems	0	54.4	IHR reporting compliance and disaster risk reduction	50	62.3
Real-time surveillance and reporting	10	39.1	Cross-border agreements on public and animal health emergency response	0	54.4
Epidemiology workforce	25	42.3	International commitments	75	53.4
Data integration between human/animal/environmental health sectors	0	29.7	JEE and PVS	0	17.7
RAPID RESPONSE	19.0	38.4	Financing	50	36.4
Emergency preparedness and response planning	0	16.9	Commitment to sharing of genetic & biological data & specimens	66.7	68.1
Exercising response plans	0	16.2	RISK ENVIRONMENT	23.5	55.0
Emergency response operation	0	23.6	Political and security risks	0	60.4
Linking public health and security authorities	0	22.6	Socio-economic resilience	35.5	66.1
Risk communication	25	39.4	Infrastructure adequacy	0	49.0
Access to communications infrastructure	27.8	72.7	Environmental risks	60	52.9
Trade and travel restrictions	100	97.4	Public health vulnerabilities	29.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



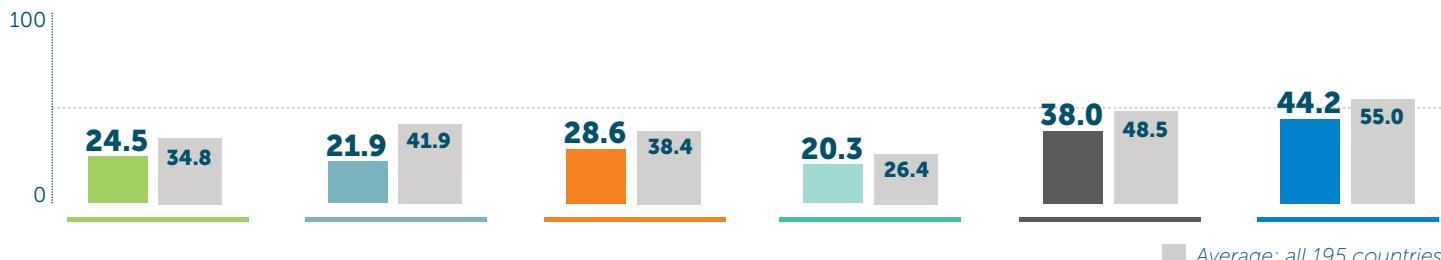
HEALTH



NORMS



RISK



	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	24.5	34.8
Antimicrobial resistance (AMR)	33.3	42.4
Zoonotic disease	0.9	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	97.4	85.0
DETECTION AND REPORTING	21.9	41.9
Laboratory systems	25	54.4
Real-time surveillance and reporting	10	39.1
Epidemiology workforce	50	42.3
Data integration between human/animal/environmental health sectors	0	29.7
RAPID RESPONSE	28.6	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	0	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	61.1	72.7
Trade and travel restrictions	100	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	20.3	26.4
Health capacity in clinics, hospitals and community care centers	21	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	26.4	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	50	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	38.0	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	0	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	44.2	55.0
Political and security risks	67.9	60.4
Socio-economic resilience	48.6	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	53.4	52.9
Public health vulnerabilities	17.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



PREVENT



DETECT



RESPOND



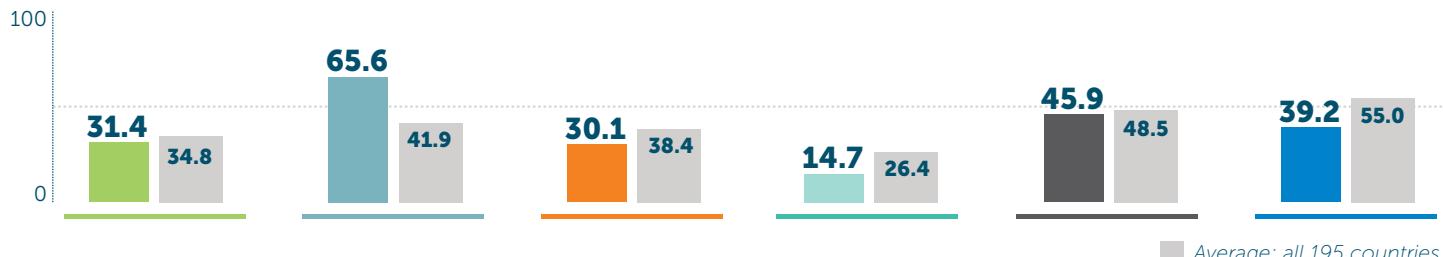
HEALTH



NORMS



RISK

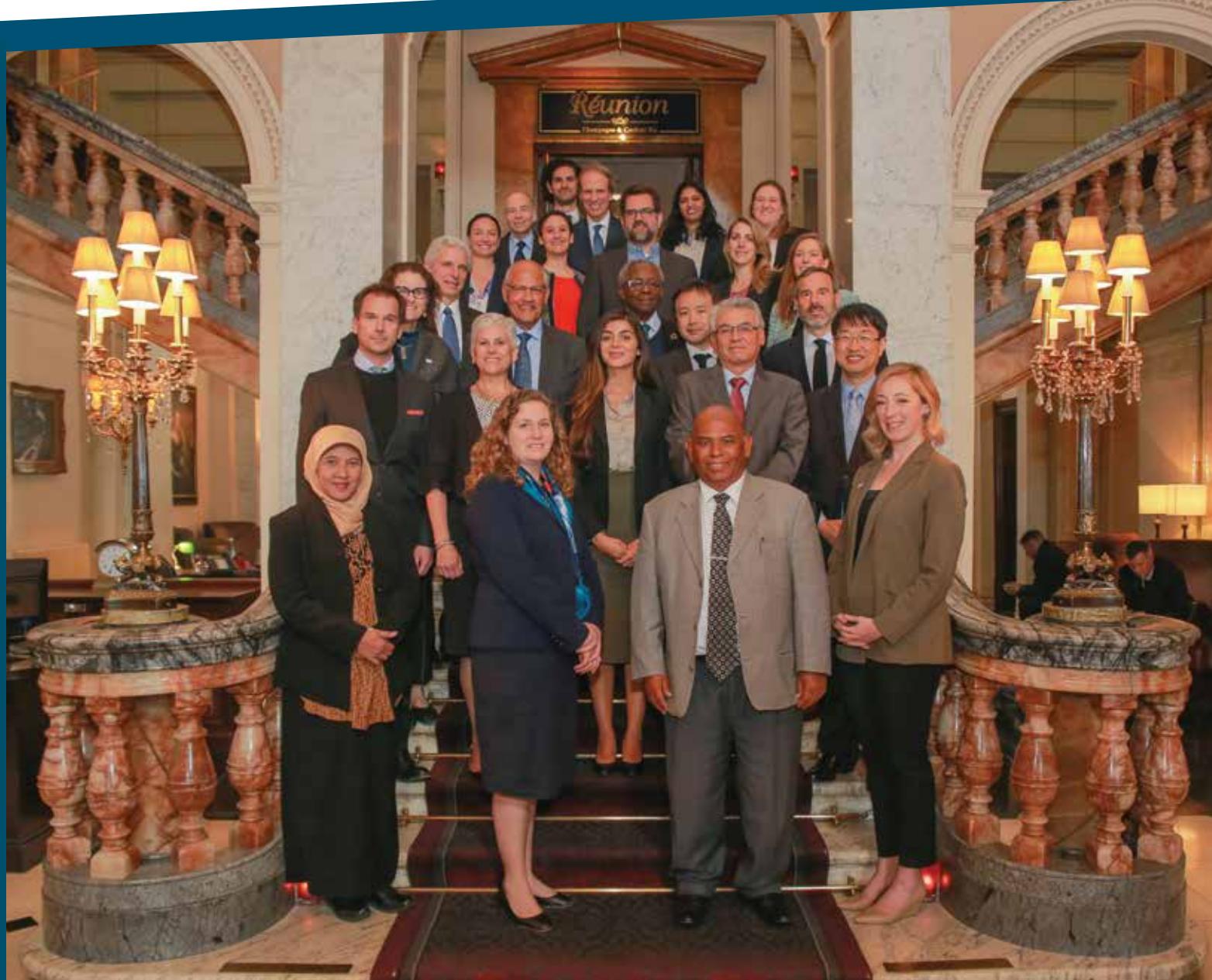


	COUNTRY SCORE	AVERAGE SCORE*
PREVENTION	31.4	34.8
Antimicrobial resistance (AMR)	50	42.4
Zoonotic disease	29.9	27.1
Biosecurity	0	16.0
Biosafety	0	22.8
Dual-use research and culture of responsible science	0	1.7
Immunization	92.1	85.0
DETECTION AND REPORTING	65.6	41.9
Laboratory systems	75	54.4
Real-time surveillance and reporting	20	39.1
Epidemiology workforce	75	42.3
Data integration between human/animal/environmental health sectors	100	29.7
RAPID RESPONSE	30.1	38.4
Emergency preparedness and response planning	0	16.9
Exercising response plans	50	16.2
Emergency response operation	33.3	23.6
Linking public health and security authorities	0	22.6
Risk communication	25	39.4
Access to communications infrastructure	62.3	72.7
Trade and travel restrictions	50	97.4

	COUNTRY SCORE	AVERAGE SCORE*
HEALTH SYSTEM	14.7	26.4
Health capacity in clinics, hospitals and community care centers	3.9	24.4
Medical countermeasures and personnel deployment	33.3	21.2
Healthcare access	29	38.4
Communications with healthcare workers during a public health emergency	0	15.1
Infection control practices and availability of equipment	0	20.8
Capacity to test and approve new medical countermeasures	25	42.2
COMPLIANCE WITH INTERNATIONAL NORMS	45.9	48.5
IHR reporting compliance and disaster risk reduction	50	62.3
Cross-border agreements on public and animal health emergency response	50	54.4
International commitments	28.1	53.4
JEE and PVS	25	17.7
Financing	50	36.4
Commitment to sharing of genetic & biological data & specimens	66.7	68.1
RISK ENVIRONMENT	39.2	55.0
Political and security risks	42.9	60.4
Socio-economic resilience	62	66.1
Infrastructure adequacy	33.3	49.0
Environmental risks	38.6	52.9
Public health vulnerabilities	20.7	46.9

*Average: all 195 countries

Scores are normalized (0–100, where 100 = most favorable)



Members of the International Panel of Experts, London, April 2019.

About the Organizations

Nuclear Threat Initiative

The Nuclear Threat Initiative (NTI) works to protect our lives, environment, and quality of life now and for future generations. NTI works to prevent catastrophic attacks with weapons of mass destruction and disruption—nuclear, biological, radiological, chemical, and cyber.

www.nti.org

Johns Hopkins Center for Health Security

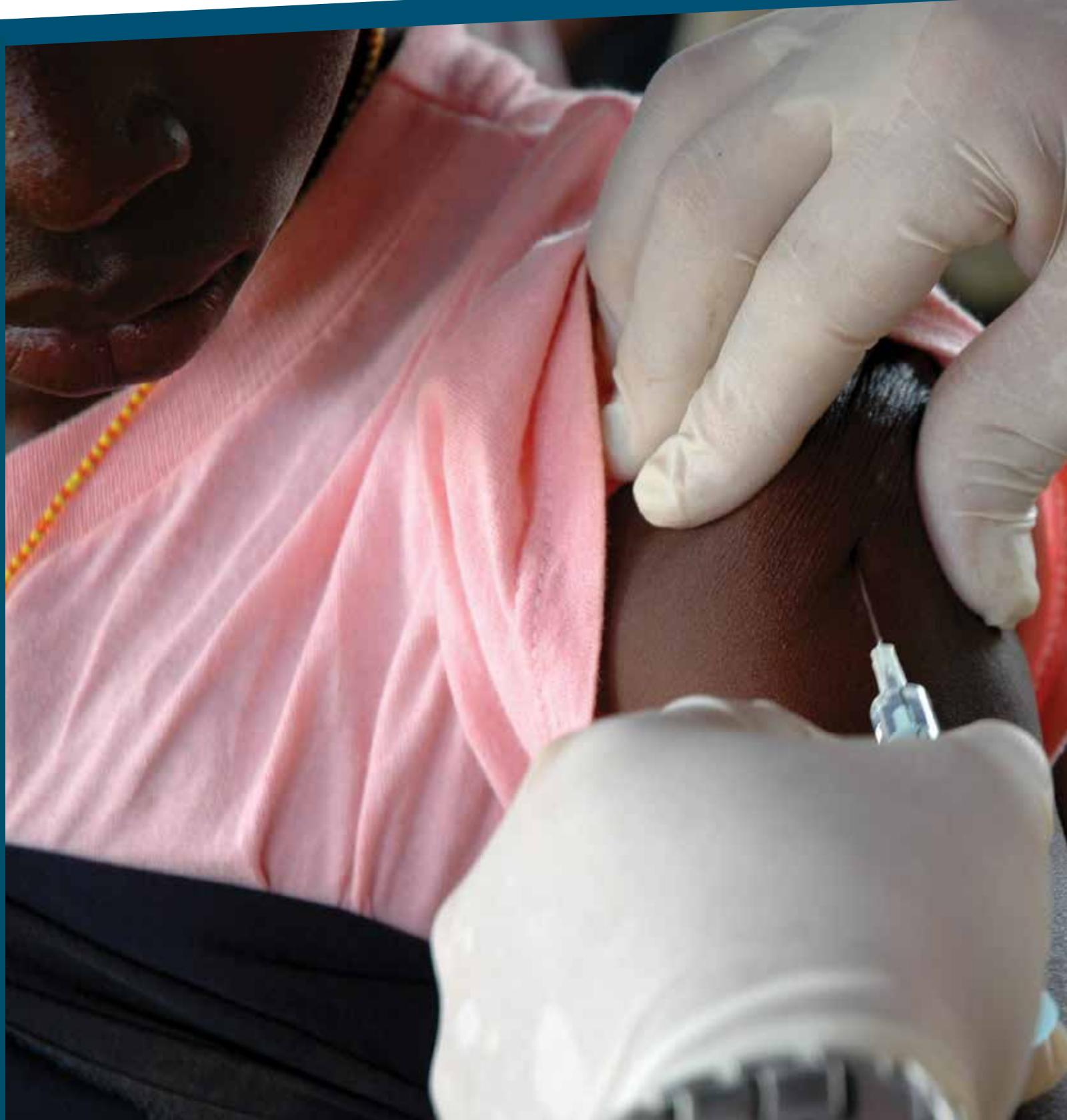
The Johns Hopkins Center for Health Security (JHU) works to protect people's health from epidemics and disasters and ensure that communities are resilient to major challenges. JHU examines how scientific and technological innovations can strengthen health security. It studies the policies, organizations, systems, and tools to prevent and respond to outbreaks and public health crises. It advances policies and practice to address a range of challenges, including the global rise in emerging infectious diseases; a continued risk of pandemic flu; major natural disasters; countries' dependence on vulnerable infrastructure; outbreaks of foodborne illness; and the potential for biological, chemical, or nuclear accidents or intentional threats.

www.centerforhealthsecurity.org

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www.eiu.com



Glossary

AMR—Antimicrobial resistance.

binary indicators—Indicators that are measured with a “yes” or “no” answer

biosafety—Combination of practices, procedures, and equipment that protect laboratory workers, the public, and the environment from the infectious agents and toxins used in the laboratory

biosecurity—Measures taken to protect infectious agents and toxins from loss, theft, or misuse

biosurveillance—Active gathering and analysis of biological data that might relate to the spread of disease or other threats to human and animal health

bottom tier—Countries scoring between 0 and 33.3 (also called “low scores”)

BWC—Biological Weapons Convention

capability—Higher level of ability that can be demonstrated

capacity—Ability that exists at present

CBM—Confidence-Building Measure

communicable disease—Illness caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector, or the inanimate environment to a susceptible animal or human host

DNA synthesis—Process by which deoxyribonucleic acids are linked to form a DNA sequence

DRC—Democratic Republic of Congo

dual-use—Research and technologies with the potential to be used for both peaceful and nefarious purposes

emerging pathogens—Pathogens that have newly appeared or increased in incidence in a population

engineered agents—Pathogens that have been genetically modified to serve as bioweapons

EOC—Emergency Operations Center

epidemic—Increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area

epidemiology—Methods used to find the causes of health outcomes and diseases in populations

especially dangerous pathogens—Pathogens that pose a severe threat to the health and safety of people, plants, or animals

FAO—Food and Agriculture Organization of the United Nations

G-7—The group of seven industrialized countries are Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The European Union also participates in G-7 meetings.

GCBR—Global Catastrophic Biological Risk; “Those events in which biological agents—whether naturally emerging or reemerging, deliberately created and released, or laboratory engineered and escaped—could lead to sudden, extraordinary, widespread disaster beyond the collective capability of national and international governments and the private sector to control. If unchecked, GCBRs would lead to great suffering, loss of life, and sustained damage to national governments, international relationships, economies, societal stability, or global security.”

GDP—Gross domestic product

genomics—Branch of molecular biology concerned with the structure, function, evolution, and mapping of genomes

Global Health Security—Measures that are required to reduce the risk and impact of health events that endanger populations around the world

high-consequence biological events—Infectious disease outbreaks that could overwhelm national or international capacity to manage them

IDA—The World Bank International Development Association

IHR—International Health Regulations (2005)

JEE—World Health Organization Joint External Evaluation

MERS—Middle East Respiratory Syndrome

MCM—Medical countermeasure, including diagnostics, therapeutics, and vaccines

middle tier—Countries scoring between 33.4 and 66.6 (also called “moderate scores”)

NAPHS—National Action Plan for Health Security

nosocomial—Originating in a hospital

OIE—World Organisation for Animal Health

One Health—Concept that human, animal, and environmental health are intertwined and should be addressed together to prevent the spread of infectious disease

pandemic—Epidemic that has spread over several countries or continents, usually affecting a large number of people

pathogens with pandemic potential—Especially dangerous pathogens that have the potential to cause a pandemic

PHEIC—Public health emergency of international concern

PVS—World Organisation for Animal Health Performance of Veterinary Services Pathway

real-time—Continuous and systematic collection, analysis, and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice

SIDS—Small Island Developing States

States Parties—The 195 States Parties to the International Health Regulations (2005)

synthetic biology—Redesign and fabrication of biological components

tabletop simulations—Exercises in which experts are brought together to discuss strategies for addressing hypothetical situations and crises

transmissibility—Degree to which a pathogen moves from one host to another

UHC—Universal Health Coverage; coverage that all people and communities can use for the promotive, preventive, curative, rehabilitative, and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship

UNSCR 1540—United Nations Security Council’s resolution on the non-proliferation of weapons of mass destruction

upper tier—Countries scoring between 66.7 and 100 (also called “high scores” and “top tier”)

urbanization—Process by which large numbers of people become permanently concentrated in relatively small areas, forming cities

vaccine-derived poliovirus—Rare strains of poliovirus that have mutated from the strain contained in the polio vaccine

virulence—Disease-producing power of an organism

WHO—World Health Organization

wild poliovirus—Naturally occurring poliovirus

World Bank—International organization that provides finance and financial advice to low-income nations seeking to increase economic development

zoonoses—Infections that spread between animals and people (also called “zoonotic diseases”)

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