GEORGETOWN UNIVERSITY | CENTER for GLOBAL HEALTH SCIENCE & SECURITY

Estimating the financial costs of IHR Implementation:

Challenges and opportunities

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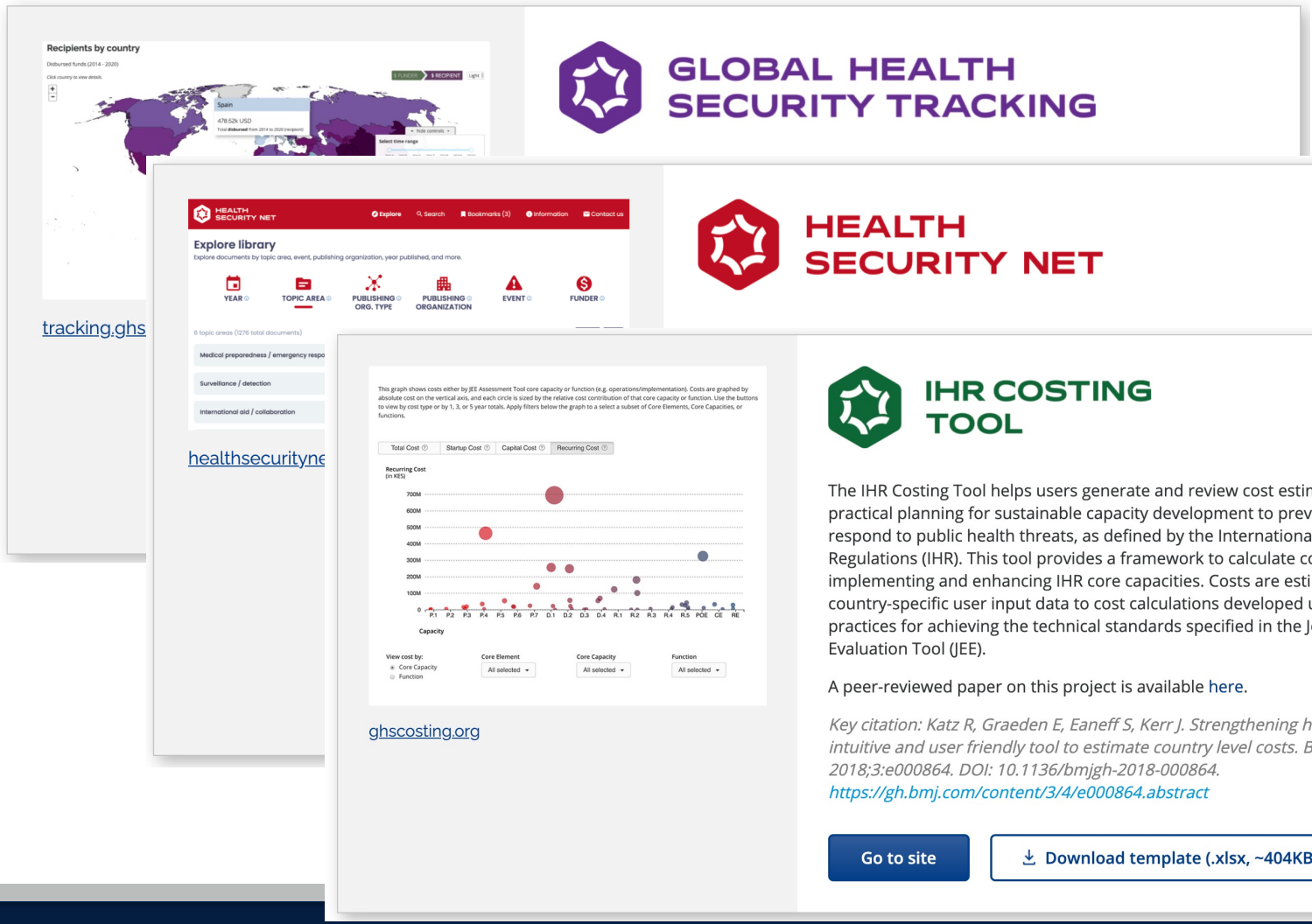
March 2023

Open-source tools for global health funding and policy (ghsidea.org)

IHR COSTING TOOL



IHR Costing Tool

IHR COSTING TOOL

- Action-based costing tool developed over 10+ years
  - Currently updating to align to JEE 3.0 (2023)
  - Incorporate additional frameworks, e.g., SPAR (2024+)
- Costs *country-level* activities for IHR implementation
- Aligned to benchmarks in Joint External Evaluation
  - stockpile kits and storage facility for SNS (R.4)
  - cold chain at national and intermediate levels (P.7)
  - field epidemiology training program (D.4)
  - skilled health workers for baseline capacity (D.4)
- Costs are modular and anchored in specific unit costs

IHR COSTING TOOL

Practice

BMJ Global Health

Strengthening health security: an intuitive and user-friendly tool to estimate country-level costs

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Eaneff S, *et a*
health securi
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estimate cou

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RESEARCH ARTICLE

Investing in global
requirements for

Stephanie Eaneff, Ellie Graeden, Ama

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Health Security
Volume 18, Number S1, 2020 © Mary Ann Liebert, Inc.
DOI: 10.1089/hs.2019.0063

Action-Based Costing for National Action Plans for Health Security: Accelerating Progress Toward the International Health Regulations (2005)

Christopher T. Lee, Rebecca Katz, Stephanie Eaneff, Michael Mahar, and Olubunmi Ojo

Inputs for action-based cost estimation (select examples)

IHR COSTING TOOL

Information Requirement	Measure	Primary data source
Country-level capacity	Self-assessed capacity across indicators	e-SPAR or JEE
	Skilled health workers per capita	WHO Global Health Observatory Skilled Health Professionals Density Data
	Number of hospitals	WHO Global Health Observatory Hospital and Hospital Bed Density Data
	Immunization rates	WHO Global Health Observatory MCV1 data for 12 months old
Administrative units	Number of intermediate areas	CIA World Factbook
Base-costs	Base costs per activity determined based on prior research, select sources included as illustrative examples	Regional personnel salaries: *WHO CHOICE Personnel Cost Data*
		Laboratory start-up costs: *Association of Public Health Laboratories*
		Cost of rapid diagnostic tests: *WHO Cost Effectiveness Research Reports*
		Cost of select cold chain requirements: *WHO COVAX Working Group on delivery costs*

Inputs for action-based cost estimation (select examples)

IHR COSTING TOOL

seaneff add two new administrative multipliers for poe and hcw — Latest commit `506d8fd` on Jan 13 — **History**

1 contributor

1235 lines (1235 sloc) | 1.2 MB — Raw | Blame

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2	c22959e4-f371-4234-9203-d97fc339bd53		JEE3.P1.1.2	
3	58aeb528-59e3-4108-acc5-39e1402013fb		JEE3.P1.1.2	
4	504277c6-f16a-4444-a926-c9456d711ffd		JEE3.P1.1.2	
5	d43b44fd-690d-49be-b6c3-65d4e80b60fa		JEE3.P1.1.2	
6	7576a9c9-0f13-48ca-99b3-e51d37a577f3		JEE3.P1.1.3	
7	c7be7388-d426-4ade-8813-bbcb13741290		JEE3.P1.1.3	
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14	d547c881-8467-4dd3-93ac-05bcdb950fcd		JEE3.P1.1.4	

seaneff add two new administrative multipliers for poe and hcw — Latest commit `506d8fd` on Jan 13

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Search this file...

	category_sloan	category	subcategory	unit_cost
2	Operating	Operating costs	Meeting expenses	Meeting - Small
3	Operating	Operating costs	Meeting expenses	Meeting - Medium
4	Operating	Operating costs	Meeting expenses	Meeting - Large
5	Transport	Workforce	Salary support and overhead	Per diem for meeting - Domestic
6	Transport	Workforce	Salary support and overhead	Per diem for meeting - International
7	Personnel	Workforce	Consultant fees	Consultant fees (daily)
8	Transport	Workforce	Consultant fees and travel expenses	International travel
9	Personnel	Workforce	Salary support and overhead	Annual salary 1 (low) plus overhead (60.0%)
10	Personnel	Workforce	Salary support and overhead	Annual salary 2 (mid) plus overhead (60.0%)
11	Personnel	Workforce	Salary support and overhead	Annual salary 3 (high) plus overhead (60.0%)
12	Operating	Operating costs	Media expenses, including printed materials	Small print job
13	Operating	Operating costs	Media expenses, including printed materials	Large print job

Work in progress!

Designing and building a learning loop: NAPHS data

IHR COSTING TOOL

Designing and building a learning loop: NAPHS data

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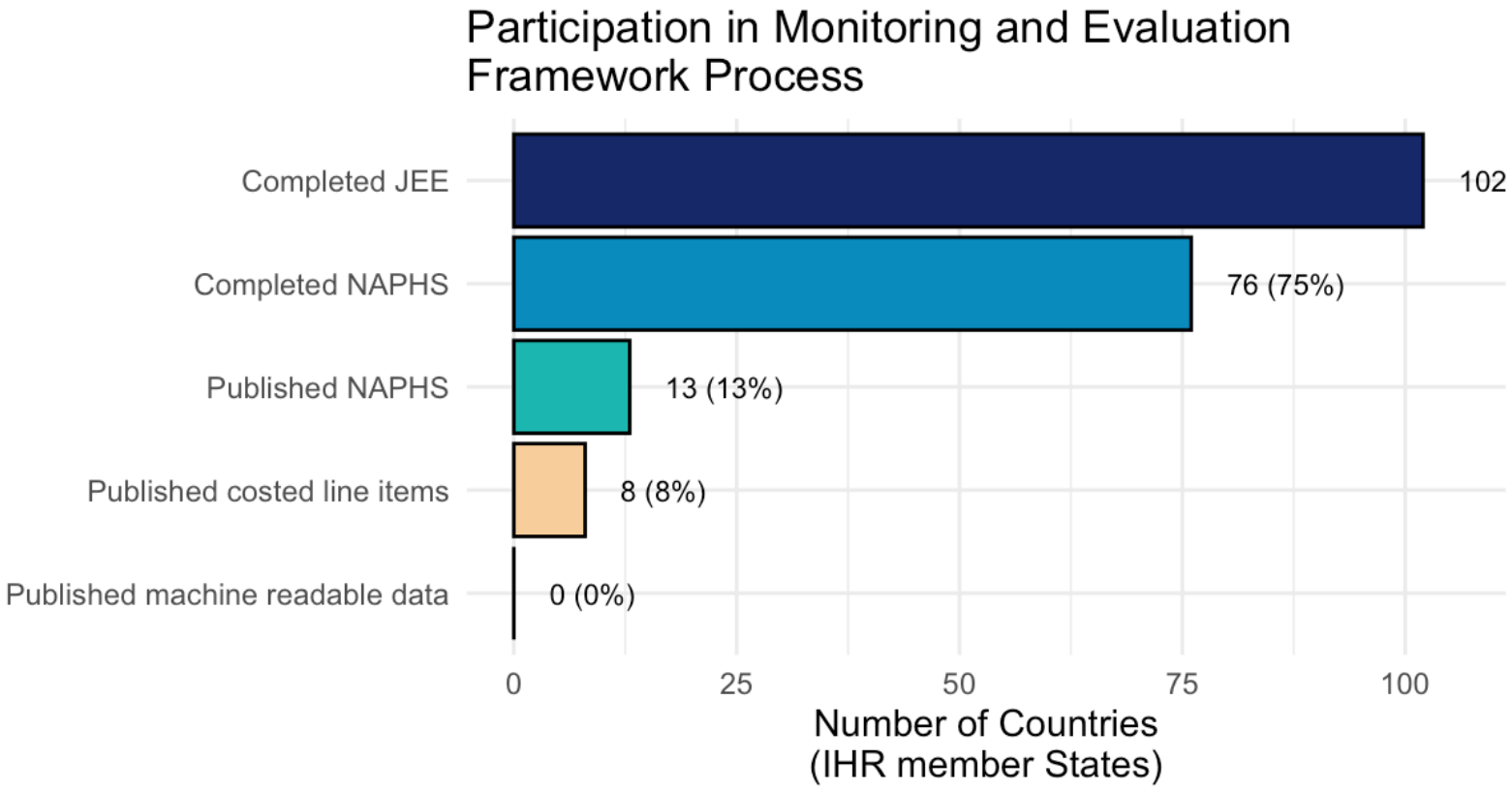

PRELIMINARY – WORK IN PROGRESS

Extracting existed costed NAPHS data

IHR COSTING TOOL

A1 | fx | Country

	A	B	C	D	E	F	G	H
1	Country	Capacity	Requirement	Action	Year (1-5)	Year (calendar)	Cost	Currency (year)
2	Liberia	P1. Legal Instrur	Conduct assessı	Hire local consul	1	2018	3600	USD (2018)
3	Liberia	P1. Legal Instrur	Conduct assessı	Establish a legis	1	2018	7900	USD (2018)
4	Liberia	P1. Legal Instrur	Conduct assessı	Develop an onlir	1	2018	N/A	USD (2018)
5	Liberia	P1. Legal Instrur	Finalize the revis	Organize validat	1	2018	6000	USD (2018)
6	Liberia	P1. Legal Instrur	Finalize the revis	Submit validated	1	2018	N/A	USD (2018)
7	Liberia	P1. Legal Instrur	Finalize the revis	Advocate for pas	1	2018	1225	USD (2018)
8	Liberia	P1. Legal Instrur	Finalize the revis	Print into handbi	1	2018	N/A	USD (2018)
9	Liberia	P1. Legal Instrur	Sensitize stakeh	Relevant stakeh	1	2018	1550	USD (2018)
10	Liberia	P1. Legal Instrur	Sensitize stakeh	Conduct a natior	1	2018	N/A	USD (2018)
11	Liberia	P1. Legal Instrur	Sensitize stakeh	Conduct County	1	2018	6750	USD (2018)
12	Liberia	P1. Legal Instrur	Build the capacit	Set committee fr	1	2018	99750	USD (2018)
13	Liberia	P1. Legal Instrur	Build the capacit	Quarterly interag	1	2018	N/A	USD (2018)
14	Liberia	P1. Legal Instrur	Build the capacit	Quarterly interag	2	2019	N/A	USD (2018)
15	Liberia	P1. Legal Instrur	Build the capacit	Quarterly interag	3	2020	N/A	USD (2018)
16	Liberia	P1. Legal Instrur	Build the capacit	Quarterly interag	4	2021	N/A	USD (2018)
17	Liberia	P1. Legal Instrur	Build the capacit	Quarterly interag	5	2022	N/A	USD (2018)
18	Liberia	P1. Legal Instrur	Build the capacit	Orientation sess	1	2018	4900	USD (2018)

PRELIMINARY – WORK IN PROGRESS

Missing data and open questions

IHR COSTING TOOL

- Extracted complete costed NAPHS data for three countries
  - 2,265 distinct line-items
  - 131 (6%) with excluded cost data
  - 104 (5%) lacked context or explanation for reasons for exclusion
- Examples of excluded costs
  - "Develop e-surveillance tools at national, intermediate and local levels of the surveillance system to support all aspects of the surveillance process"
  - "Procure and supply yellow fever vaccines and [consumables]"

PRELIMINARY – WORK IN PROGRESS

What we've learned so far

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- Opportunities to learn from costed NAPHS data
  - Evidence based estimates for future budgeting efforts
  - Identify trends, not just by core capacity but across domains
  - Data extraction is labor intensive, but one-time effort per country

- Accessible data help identify gaps and new questions
  - Missing data → Potential underestimation of total/overall costs
  - Excluded costs → Zero cost for whom, in what situations?
  - Initial suspicion of errors in select calculations/aggregations

PRELIMINARY – WORK IN PROGRESS

Discussions

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- Questions for us

- Your expertise in costed NAPHS
  - How standardized is the process to determine inputs?
  - When, and why, might costs be excluded?
  - Barriers to data sharing (no data, vs. PDF, vs. machine readable)

PRELIMINARY – WORK IN PROGRESS

Thank you

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Appendix

Scope and key assumptions

IHR COSTING TOOL

- Costs *country-level* activities over a period of 5 years
- Aligned to benchmarks in Joint External Evaluation
  - stockpile kits and storage facility for SNS (R.4)
  - cold chain at national and intermediate levels (P.7)
  - hospital IPC training & hand hygiene kits (P.3, P.3.2)
  - field epidemiology training program (D.4)
  - skilled health workers for baseline capacity (D.4 in JEE 2.0)
- Does not include costs for drug R&D, any manufacturing, vaccines other than measles, or SDG WASH targets

Estimated 5 year country costs

IHR COSTING TOOL

Estimate cost of **$124 B** to build country capacity globally over 5 years, similar to WHO estimate of of **$107.2 B** and within the reported range of **$106-204 B** from McKinsey

Pillar	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Prevent	$5 B	$5 B	$5 B	$6 B	$6 B	$27 B
Detect	$18 B	$8 B	$8 B	$9 B	$9 B	$52 B
Respond	$10 B	$7 B	$8B	$8 B	$9 B	$41 B
Other hazards	<$1B	<$1B	<$1B	<$1B	<$1B	$3 B
Total cost	$33 B	$20 B	$22 B	$24 B	$24 B	$124 B
Cost per capita	$4.20 pp	$2.64 pp	$2.84 pp	$3.05 pp	$3.15 pp	

Workforce requirements drive costs

IHR COSTING TOOL

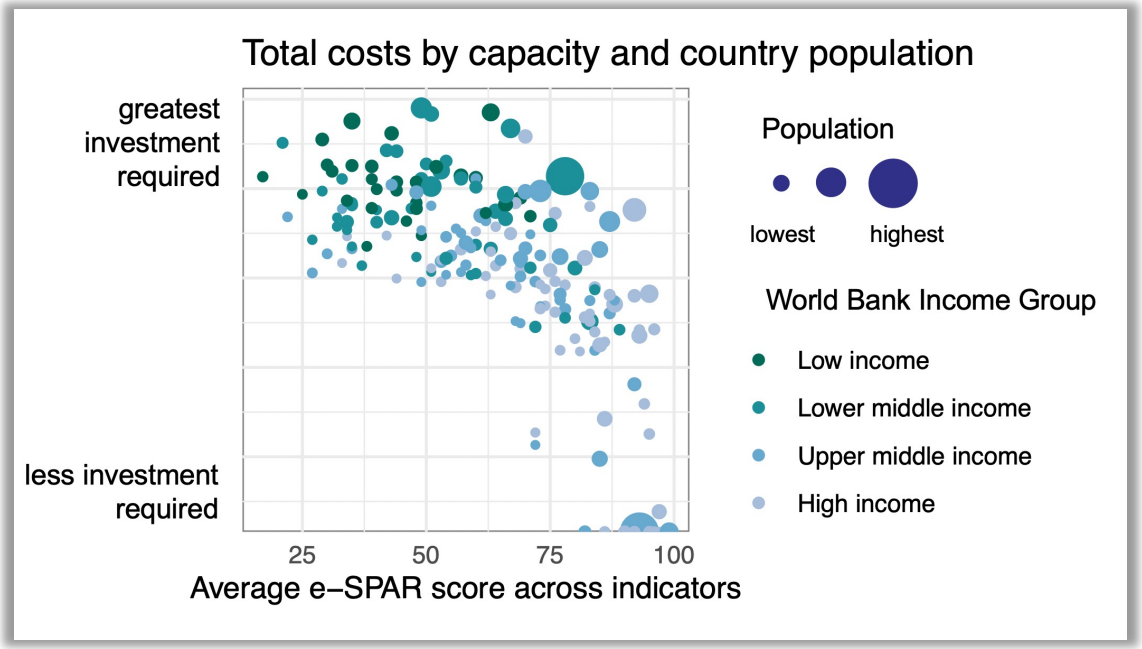
- Workforce costs predominate in all pillars, and make up approximately **66%** of all estimated 5-year costs
  - skilled healthcare workforce (physicians, nurses, midwives), 51%
  - public health workforce (e.g., epi, animal health, laboratory), 15%
- Operational workforce requirements *exceed* this number, which costs only the baseline workforce necessary for JEE benchmarks
- Consistent findings across analyses, McKinsey report also highlights the relative importance of personnel costs

References:

1. assumed 1.65/1,000 population minimum reported threshold in "A universal truth: no health without a workforce." WHO & Global Health Workforce Alliance.
2. 4.45/1,000 population reported as required for "operational routine services" in second edition JEE . See human resources target description.

Greatest costs in low and lower-middle income countries

IHR COSTING TOOL



Total five year costs per country vs. average e-SPAR score. Points sized by country population. Vertical axis positioned by total 5 year costs on a log scale.

- Costs scale with capacity and population size
- Greatest cost in populous countries with low capacity
- 79% of costs are for low or lower middle income countries

Holy See excluded from figure

Key takeaways

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- Reliable cost estimation relies on clearly defined benchmarks and assessment of current capacity
- Consistent results across independent analyses articulate clear need for additional country financing, particularly:
  - high up-front investments in years 1 and 2
  - significant investment in lower income countries
  - additional workforce required to meet IHR requirements

Key findings

IHR COSTING TOOL

- Cost estimates to build country capacity are consistent across sources, despite variation in specific costed activities, methods
  - WHO & IHR Costing Tool cost similar items with similar results
  - McKinsey costs are broader, global, but country costs are aligned
- Workforce requirements drive costs across all pillars
  - 51% of total estimated costs for skilled healthcare workforce
  - 15% of total estimated costs for public health workforce
- Costs scale with existing capacity and population size
  - greatest costs in populous countries with low capacity
  - 79% of costs are for low or lower middle income countries

Cost estimates are generally consistent & depend on assumptions

IHR COSTING TOOL

Source	Country cost estimate (5 years)	Assumptions and costed items
WHO (2020)*	$107.2 B	Incorporates policy and coordination, taxes and subsidies, regulations and legislation information collection and research, communication and population services.
IHR Costing (2021)	$124 B	Incorporates policy and coordination, regulations and legislation, information collection and research, veterinary services, biosafety and biosecurity, and communication and baseline public health infrastructure investments, including workforce needed for IHR-related activities.
McKinsey (2021)**	$106 – 204 B	Incorporates global activities including "achieve global immunization", collection of complete vital statistics data, drug and vaccine R&D and manufacturing, and mapping the global virome.

Estimated country-level five year costs in billions of USD, across sources

* WHO separately estimates the cost of building global capacity, this estimate is specifically for country-level investments

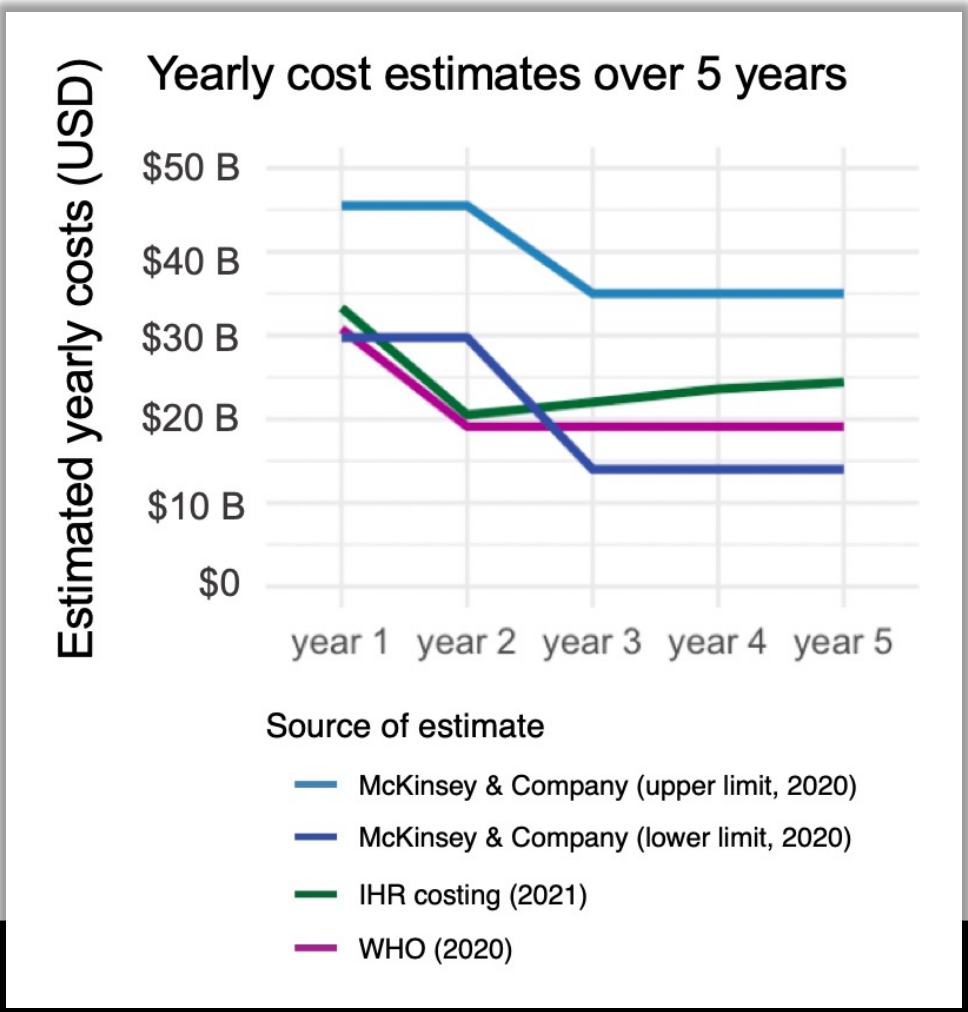
** This accounts for ~70% of topline 5 year costs in McKinsey report: "about 70% [of this spend] would take place at the country-level". Estimate rounded to the nearest full billion.

Sources:

1. WHO Unpublished Report to the G20 (2020).
2. McKinsey. Not the past pandemic: Investing now to reimagine public-health systems. 2021.

Consistent finding of higher initial start-up costs

IHR COSTING TOOL

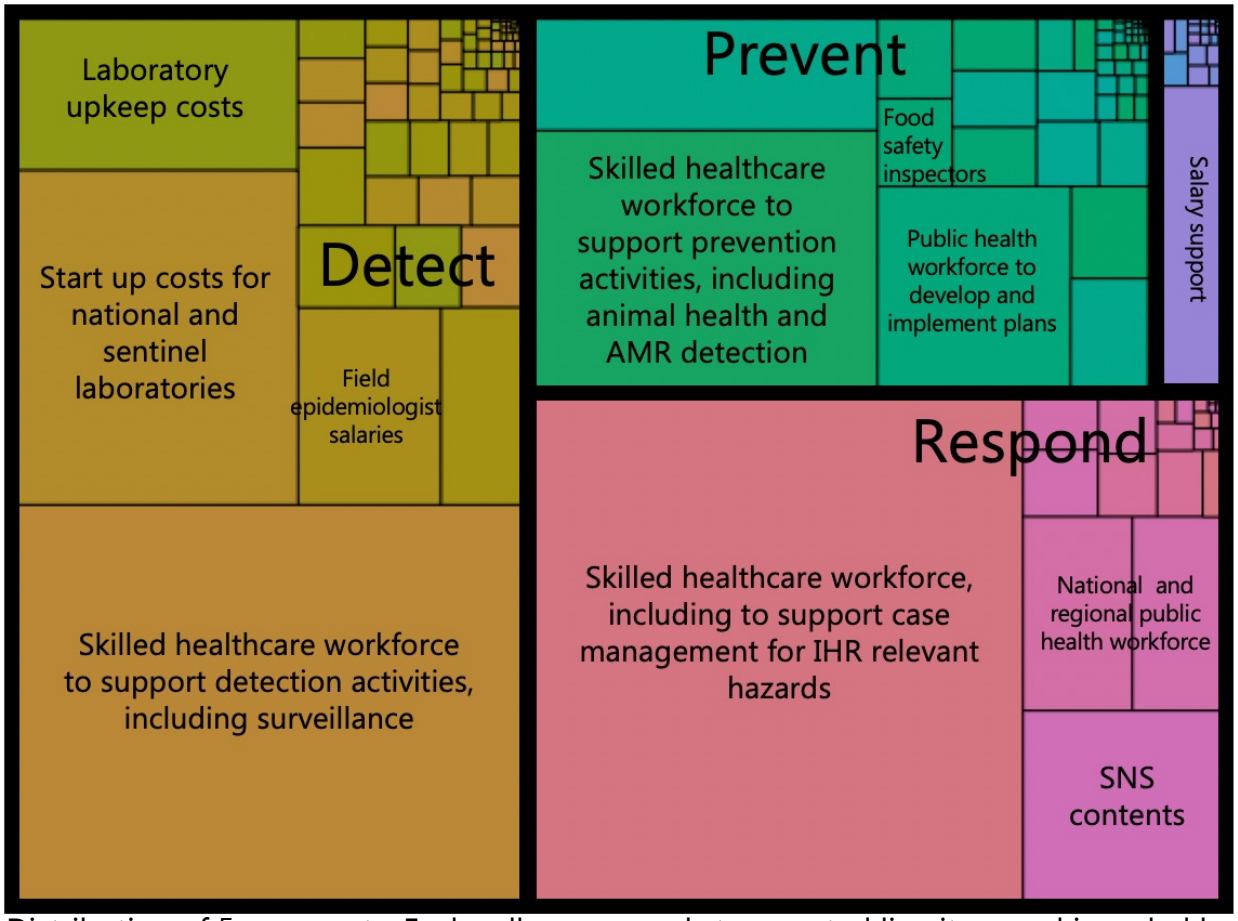


Estimated country-level costs across sources, by year

- All sources in agreement that initial costs are greatest
- Highlights the importance of rapid financing availability, particularly in early stages of capacity building

Workforce requirements drive costs across core capacities

IHR COSTING TOOL



Distribution of 5-year costs. Each cell corresponds to a costed line item and is scaled by cost and colored by pillar (e.g., prevent, detect, respond)

Select data sources

IHR COSTING TOOL

Information Requirement	Measure	Primary data source
Country-level capacity	Self-assessed capacity across indicators	e-SPAR
	Skilled health workers per capita	WHO Global Health Observatory Skilled Health Professionals Density Data
	Number of hospitals	WHO Global Health Observatory Hospital and Hospital Bed Density Data
	Immunization rates	WHO Global Health Observatory MCV1 data for 12 months old
Administrative units	Number of intermediate areas	CIA World Factbook
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		Laboratory start-up costs: *Association of Public Health Laboratories*
		Cost of rapid diagnostic tests: *WHO Cost Effectiveness Research Reports*
		Cost of select cold chain requirements: *WHO COVAX Working Group on delivery costs*