World Health Organization (2022)

Ensuring Equitable Vaccine Distribution

Background

The World Health Organization has been in the zeitgeist for the past two years as part of the response to the unprecedented COVID-19 pandemic. But the WHO is about more than just one disease, and as a committee, we will tackle old and new public crises. During this session of the WHO, we will look at how to provide equitable and fair vaccine distribution to all countries. We will also look at the harmful effects of air pollution and how to work together to mitigate and combat them. Finally, we will have a dialogue on sexual and reproductive health, looking at best practices, current threats to reproductive health and ways to meaningfully advance the conversation.

Herd immunity, the point at which a certain percentage of people are immunized against a disease so that that illness cannot effectively spread, only works when enough people work together towards widespread vaccination. In order to decrease the number of preventable deaths occurring throughout the world, both the accessibility of vaccines and education around vaccination are critical.

The benefits of a robust and comprehensive vaccine distribution program include:[1]

- **Saving lives:** Between 2010 and 2017, the mortality rate of children under five years of age decreased by 24 percent, due in large part to immunization.
- **Preventing disabilities and other illness-related quality of life concerns:** Even when diseases are not fatal, they can leave physical and mental ailments that continue to affect patients long after the initial infection.
- **Educational attainment**: Children who don't suffer from vaccinable diseases are shown to perform better in school and throughout life. This could be attributed to less missed time in school or to reduced distractions from potentially painful illnesses. The Immunization Agenda 2030 states that, "Children who are immunized tend to attain more years of schooling and score higher in cognitive tests than those who are unvaccinated."
- **Reducing and combating individual poverty:** Vaccines will help an estimated 24 million people from falling into poverty through 2023. Preventing infections before they happen means that individuals won't have to pay for lengthy and expensive treatment plans. This also means that they won't lose time from work and potentially fall into a cycle of poverty.

[1] https://www.who.int/immunization/IA2030_draft_4_WHA.pdf

- **Promoting global economic prosperity:** Vaccine programs often pay for themselves by reducing the burden on public health systems and promoting a healthier population. The earlier in the outbreak the program is implemented, the more dramatic this economic benefit becomes. In one drastic example, studies of measles vaccine distribution show that $1 USD in vaccine distribution provided $7.8 USD in overall economic benefits. Doing nothing on the other hand is often economically devastating. The Ebola crisis in Africa has been estimated to have cost a cumulative $53M USD in economic impact.

Several obstacles stand in the way of strong equitable vaccine progress. Those include:

- **Food insecurity**: Malnourished or under-nourished individuals and children are more likely to suffer from common viral infections.
- **Clean water, sanitation, and hygiene**: Diseases thrive in unsanitary conditions. Basic investments into safe water supply can make a world of difference in fighting diseases like Tetanus.
- **Effective, safe, people-centered health systems**: Vaccines need to be accessible and the populace needs to have trust and confidence in the local systems that provide them. Working around priorities like family and work responsibilities to provide the opportunity for people to receive immunization. If you don't take those obstacles into account, you risk leaving a large portion of the most vulnerable populace without the means to protect their health.
- **Misinformation and vaccine hesitancy**: Vaccine hesitancy threatens the important herd immunity that has been built through vaccination programs and can hurt our ability to fight future epidemics.[2]

Historical Background and Current Situation

The WHO and other related organizations have done a world of good in combating and preventing disease and infection through immunization.

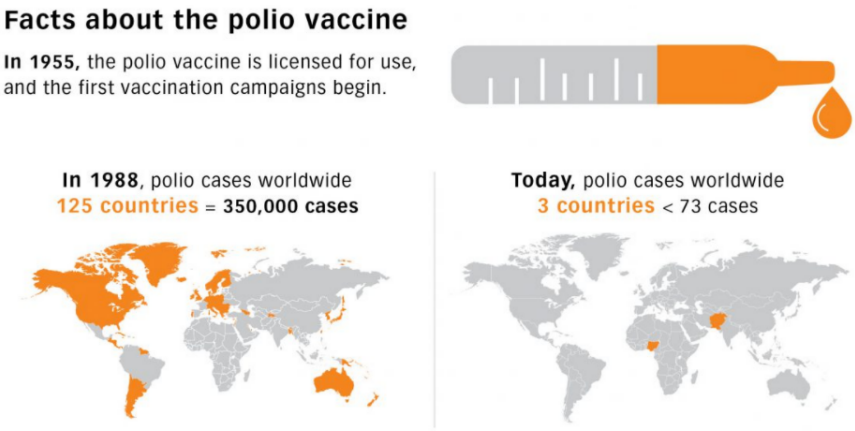
Polio has been an outstanding success story when viewed through just about any metric. More than 800,000 lives have been saved and 18 million cases of paralysis have been prevented.[3] In 2021, there were just three countries with active cases. With a concerted effort by all parties involved, we can eliminate polio once and for all. Unfortunately, some experts say that without continued efforts and international support, the world could risk a "resurgence of polio that could paralyze more than 200,000 children worldwide every year."[4]

In a similar fashion, measles has been an unmitigated immunization success story. In the 1960s, measles was a leading cause of child mortality worldwide with over two million deaths annually. The mortality rate decreased by 78 percent from 2000 to 2018, saving an estimated 17 million lives. Still, we have not succeeded in regional elimination, and vaccine hesitancy has allowed measles to regain a foothold across many countries and communities. COVID-19 has

[2] https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha_b8850379-1fce-4847-bfd1-5d2c9d9e32f8.pdf?sfvrsn=5389656e_66&download=true
[3] https://www.cdc.gov/globalhealth/infographics/immunization/unsung-heroes-of-polio-eradication.html
[4] https://www.cdc.gov/globalhealth/infographics/immunization/unsung-heroes-of-polio-eradication.html

exacerbated this dangerous trend, and 2020 held the unfortunate distinction of being the year with the highest number of children who missed their yearly measles vaccine.[5] The causes of this include overworked public health systems and misinformation over efficacy of the vaccine. Even a small dip in the overall vaccination rate can allow the extremely infectious measles to disease to tear through a community.

Maternal and Neonatal Tetanus is a dangerous disease that kills tens of thousands of infants every year. The disease is associated with unsanitary conditions and is heavily correlated with poverty. Through immunization programs, it has been eliminated in 75 percent of member nations, but the growing number of climate and conflict refugees have fueled a resurgence in several countries, and a new strategy will be needed to ensure complete eradication.



In 2011, the World Health Organization launched the Global Vaccine Action Plan (GVAP). This 10-year plan laid out action items, key metrics and goals for the various immunization targets.

In 2020, the World Health Organization published the Immunization Agenda 2030, a detailed report that outlined key goals through 2030 for the pursuit of vaccine and immunization progress.[6] The Agenda seeks to "acknowledge continuing and new challenges posed by infectious diseases" and "aligns the activities of [all] stakeholders…to improve access to high-quality primary health care, achieve universal health coverage, and accelerate progress towards the 2030 Sustainable Development Goals (SDGs)."

Vaccine Distribution is particularly important when considering the effects of climate change-related trends. Climate change can cause an increased risk of infection due to changing temperatures. Rising temperatures are expected to cause an incremental 60,000 malaria deaths per year if we don't take action. Climate change can also cause harm indirectly by pushing climate refugees to leave their homes, which can be associated with crowded and unsanitary conditions during travel. Diseases most likely to increase in frequency due to climate change effects include yellow fever, malaria, meningitis and cholera.

[5] https://www.nbcconnecticut.com/news/local/ct-doctor-addresses-concerns-about-possible-spread-of-measles/2685765/
[6] https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha_b8850379-1fce-4847-bfd1-5d2c9d9e32f8.pdf?sfvrsn=5389656e_66&download=true

Key Terms

- Immunization Agenda 2030 - A Global Strategy to Leave No-One Behind
- Global Health Strategy
- Antimicrobial Resistance
- International Health Regulations (2005)
- Sustainable Development Goals (SDGs)
    - SDG 3: “Ensure healthy lives and promote well-being for all at all ages”
- Global Vaccine Action Plan (GVAP) - (2011 - 2020)
    - GVAP Report Monitoring, Evaluation, and Accountability Report (2020)
- National Immunization Programmes
- Regional Vaccine Action Plans
    - EMRO Regional Vaccine Action Plan (EMVAP) (2016-2020)
    - AMRO regional vaccine action plan
    - African Regional Strategic Plan for Immunization (2014–2020)
    - European Vaccine Action Plan (2015 - 2020)
    - South-East Asia regional vaccine action plan
    - Western Pacific regional vaccine action plan
- Monitoring and Evaluation Framework
- Polio Endgame Strategy (2019 - 2023)
- Neonatal Tetanus Elimination
- Global Measles and Rubella Strategic Plan
- Ending Cholera - A Global Roadmap to 2023
- Global Health Sector Strategy on Viral Hepatitis (2016–2021)
- Global Vector Control Response (2017–2030)
- Global Roadmap to Defeat Meningitis
- Global Influenza Strategy (2019–2030)
- Zero by 30: The Global Strategic Plan

Bloc Positions

Vaccine Developer member nations and their duty to the world

Pharmaceutical companies are disproportionately located in Europe and the United States, therefore new vaccines are very likely to come from states that have those companies. Some member nations will argue that even though these nations help develop new vaccines, they have a duty to the rest of the world to promote vaccine equity and to share the newfound technology, regardless of borders and national interest. This could come in the form of low-cost or no-cost vaccine sharing programs. It could also come in the form of relaxing vaccine intellectual patents so that other countries can start manufacturing these doses. Critics of this approach say that we should be incentivizing North America and Europe to create more vaccines, not adding additional burdens.

Discussion Questions

- The COVID-19 epidemic uncovered many weaknesses in overburdened public health systems throughout the world. What lessons can we learn from COVID-19 to strengthen and reinforce these vital public health systems?
- Misinformation and vaccine hesitancy are on the rise across all countries and communities. This trend threatens to revert progress made on a host of dangerous diseases. How can the U.N. and member nations best educate and encourage the populace to trust in the benefits of immunization?
- Immunization is often correlated with educational success, gender equality, and breaking the cycle of poverty. How can we best provide immunization to those who would benefit the most from it?

References and Additional Resources

WHO Fact Sheets:

- https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality
- https://www.who.int/news-room/fact-sheets/detail/cholera
- https://www.who.int/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer
- https://www.who.int/news-room/fact-sheets/detail/influenza-(seasonal)
- https://www.who.int/news-room/fact-sheets/detail/malaria
- https://www.who.int/news-room/fact-sheets/detail/measles
- https://www.who.int/news-room/fact-sheets/detail/poliomyelitis
- https://www.who.int/news-room/fact-sheets/detail/rubella
- https://www.who.int/news-room/fact-sheets/detail/yellow-fever

Other Resources:

- https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1
- https://www.cdc.gov/globalhealth/infographics/immunization/unsung-heroes-of-polio-eradication.html
- https://cdn.who.int/media/docs/default-source/immunization/strategy/ia2030/ia2030-draft-4-wha_b8850379-1fce-4847-bfd1-5d2c9d9e32f8.pdf?sfvrsn=5389656e_66&download=true

Climate Change as a Public Health Crisis

Background

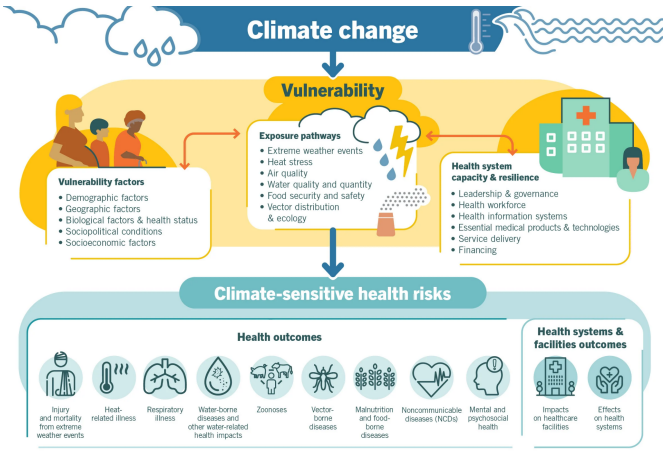
Climate change has always been a public health crisis, but it was not until recently that world leaders started to see it this way. Dr. Maria Neira, the director of the WHO's Public Health, Environment and Social Determinants of Health Department, rejects the notion that the 2015 Paris Agreement is fundamentally an environmental treaty. According to her, it is a basic public health treaty.

Climate change exacerbates and increases the frequency of natural disasters, including heat waves, drought, flooding, and others. This leads to an increase in heat-related mortality, pregnancy complications, cardiovascular disease and a host of other health issues. Secondary effects are also caused by ecological impacts, such as decreased food security leading to an increase in malnutrition.[7] The current climate situation coupled with the ongoing global pandemic makes the present a pivotal moment to determine our future.

Generally, climate change is seen as a consequence of industrialization and economic growth. However, the effects of climate change are disproportionately felt by countries and people not benefiting from its causes. As developed countries generally have better healthcare in terms of quality and accessibility, the health consequences of climate change are compounded for the global community's most vulnerable populations.

Historical Background and Current Situation

Analyzing climate change as a public health crisis was already gaining steam as early as 2015 among the academic community.[8] The call to address climate change in the wake of a growing public health crisis has been exacerbated by the global COVID-19 pandemic. Recently, over 200 medical journals released an unprecedented joint statement calling upon the United Nations to take action. "The science is unequivocal: a global increase of 1.5° C above the pre-industrial average and the continued loss of biodiversity risk catastrophic harm to health that will be impossible to reverse."[9] A recent Nature article found that over one-third of



[7] [NYT] Effort to Reframe Climate Change as a Health Crisis Gains Steam
[8] Health and climate change: policy responses to protect public health
[9] Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health

heat-related deaths can be attributed to climate change.[10] The global pandemic also limits the ability with which hospitals and healthcare systems can respond to climate-related health effects.[11]

Many see climate change as the inevitable result of industrial development and economic growth.[12] An unfortunate reality is that those most impacted by climate change often benefit the least from its causes.[13] Since 2000, childhood death has been cut in half globally, and adults are living an average of 5.5 years longer.[14] However, climate change threatens to undo decades of progress in a mere fraction of the time. We have seen in the last few years that children especially are most at risk for climate-related health complications.[15]

It should be noted, however, that developed countries are not entirely immune from the effects of climate change, health-related or otherwise. We have seen this with wildfires, hurricanes, and flooding among other disasters affecting both developing and developed countries. Minority populations even in developed countries tend to experience disproportionately higher rates of climate-related health complications.[16]

In addition to the externalities caused by climate change already listed, there are tertiary and even further cascading adverse effects caused by climate change. Climate change results in lower food security, leading to malnutrition, which we know to be a major indicator of health complications among developing nations. However, the harm goes even further; as quality of life declines or as land physically disappears due to rising sea levels, we will continue to see "climate refugees" lead to an increase in global migration.[17] Scientists have also noted that climate change poses threats to mental health and general well-being.[18] Research has even linked climate-related events and increases in global temperature to increased levels of violence.[19]

Key Terms

- Universal Health Coverage (UHC)
- Intergovernmental Panel on Climate Change (IPCC)
- Carbon Reduction Benefits on Health
- Friends of Ecosystem-based Adaptation
- Health early warning systems

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[10] [Nature] More than one-third of heat deaths blamed on climate change
[11] [NPR] https://www.npr.org/2021/09/07/1034670549/climate-change-is-the-greatest-threat-to-public-health-top-medical-journals-warn
[12] *Climate Change, Capitalism, and Corporations* by Daniel Nyberg and Christopher Wright. ISBN: 9781139939676
[13] Climate Change and Social Inequality
[14] [NPR] Why Climate Change Poses A Particular Threat To Child Health
[15] Lancet 2019 Report
[16] [Time] Climate Change Isn't Just a Global Threat—It's a Public Health Emergency
[17] [IPCC] Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities
[18] [Scientific American] Climate Change Is a Public Health Emergency
[19] Climate Change and Violence: Insights from Political Science

- Health National Adaptation Plan
- International Union for the Conservation of Nature
- Memorandum of understanding National Adaptation Plan
- National biodiversity strategy and action plan
- Nationally determined contribution
- United Nations Environment Programme United Nations Framework Convention on Climate Change Vulnerability and adaptation

Bloc Positions

Discussions at the global level on climate change often come down to talks between developed and developing nations. Developed nations, in general, have contributed the most to climate change, with the speed of industrialization relating to the degree of impact on global emissions. Meanwhile, developing nations are disproportionately affected by climate change. They simultaneously experience the worst of the effects while being least-equipped to deal with them. Many hold that developed countries bear a large share of the burden of correcting the current climate trajectory and mitigating the effects of climate change.

There is another group of countries more prone to climate-related disasters and negative health outcomes. These include island nations, smaller nations, and nations with lower food security and less advanced infrastructure. These nations have historically pushed the hardest for accountability on the global stage.

Developed nations, on the other hand, have had to balance domestic and international efforts to combat climate change. By virtue of having larger economies, these countries may be slower to act due to the same corporate interests that propagated climate change in the first place.

Discussion Questions

- To what extent does climate change lead to poorer health outcomes?
- Who does the responsibility of climate-related health complications fall on? How can multilateral institutions encourage climate and health equity by providing support to those who need it?
- How should we prioritize combating climate-related health complications? Should we prioritize tackling climate change and reducing its harmful health effects, or should we prioritize addressing the health issues themselves with targeted public health policy and mitigation efforts?

References and Additional Resources

- TED Talk: Climate Change is affecting our health - is there a cure?
  Climate Change is Affecting Our Health. Is There a Cure? | Jonathan Patz | TEDxO…

- WHO Southeast Asia - Climate Change and Health - https://www.youtube.com/watch?v=pL32gcXUKxY
- Climate Change and Health Fact Sheet - https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
- 2021 WHO health and climate change global survey report - https://www.who.int/publications-detail-redirect/9789240038509
- [CDC] Climate Effects on Health - https://www.cdc.gov/climateandhealth/effects/default.htm

Air Pollution and its effect on human health

Background

In 2021, the World Health Organization released new Air Quality Guidelines that estimated that "exposure to air pollution is estimated to cause seven million premature deaths [as well as] loss of millions more healthy years of life." This public health crisis impacts children and adults, is present outside and inside the home, and has a multitude of causes as well as a multitude of negative health consequences. The same guidelines said that air pollution is "on par with other health risks such as tobacco smoking" and that it is "one of the biggest environmental threats to human health alongside climate change."[20]

Historical Background and Current Situation

Air pollution is defined as "contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere." Many experts identify a clear delineation between outdoor air pollution and indoor air pollution. The causes of air pollution are varied and multifaceted, but include:

- **Outdoor (ambient) air pollution**: Motor vehicles, industrial facilities, and forest fires
- **Indoor air pollution**: Household combustion devices, kerosene stoves, coal

Generally, the burden of air pollution falls on already disadvantaged populations. For example, around 800 million people lack access to household electricity. This population is disproportionately more likely to cook using a "simple stove," one powered by a fuel like biomass or coal. Unfortunately, this kind of cooking is a huge health risk with regard to indoor air pollution. Small soot particles can penetrate deep in the lungs and linger in the air for a long time. According to a WHO Fact Sheet, "Indoor smoke can be 100 times higher than acceptable levels for fine particles" in these cooking situations. It's especially galling when you consider the fact that children and women are often disproportionately affected by this cooking soot.

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20 https://www.who.int/news/item/22-09-2021-new-who-global-air-quality-guidelines-aim-to-save-millions-of-lives-from-air-pollution

Air pollution, both ambient and indoors, cause a wide range of health risks including:

- Pneumonia: Exposure to air pollution is associated with double the risk of pneumonia and accounts for about a quarter of air pollution-related deaths.
- Stroke: Indoor kerosene cooking is strongly correlated with strokes, which cause approximately one fifth of air pollution-related deaths.
- Ischaemic heart disease: Household air pollution causes this heart disease, which accounts for about 11 percent of air pollution deaths.
- Chronic Obstructive Pulmonary Disease (COPD): Approximately one-quarter of air pollution deaths are caused by COPD. The WHO has found that "Women exposed to high levels of indoor smoke are more than twice as likely to suffer from COPD than women who use cleaner fuels and technologies. Among men (who already have a heightened risk of COPD due to their higher rates of smoking), exposure to household air pollution nearly doubles that risk."
- Lung Disease: Lung disease accounts for about 17 percent of air pollution deaths.

Just like the causes of air pollution vary, so do the ways to tackle it. One of the most effective ways to tackle indoor air pollution is encouraging proliferation of safer natural gas and electric cooking appliances. Of course, this will likely also involve a push for greater electrification of rural communities across the globe as well as a massive push to inform and raise awareness of the dangers of combustion-based cooking.

If we start looking at the air pollution emitted by combustion cars, a whole host of issues arise. People need cars in many parts of the world for mobility and to travel between work, home, and social events. Transit can be a much better alternative, but many countries don't have a strong transit infrastructure or the means to create one. Electric cars are another air pollution-free alternative, but electric vehicles (E.V.s) are often prohibitively expensive and rely on a system of charging infrastructure that is not available everywhere.

In order to tackle air pollution, this committee will have to consider the varied root causes, address them individually, and propose a raft of solutions ranging from simple changes to widespread reform. Equity will have to be considered in order to make sure we are helping those who have historically been most affected by climate change, and this committee will have to look at what actions are feasible and effective. Ultimately, this work will not be easy but it can help to save some of the seven million premature deaths and make the world a safer, cleaner, and healthier place.

Key Terms

- Ambient Air Quality Database
- National Air Quality Standards
- Air Quality Guidelines (AQGs)
- Global Health Observatory (GHO)

- Chronic Obstructive Pulmonary Disease (COPD)
- Clean Household Energy Solutions Toolkit (CHEST)
- Sustainable Development Goals (SDGs)
    - SDG Indicator 3.9.1 - Mortality rate from the joint effects of household and ambient air pollution
    - SDG Indicator 7.1.2 - Population with primary reliance on clean fuels and technologies
    - SDG Indicator 11.6.2 - Air Quality in Cities
- Roadmap for Enhanced Action (2016)
- Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC)
- WHO's International Agency for Research on Cancer (IARC)
- Global Alliance for Clean Cookstoves and the Climate Clean Air Coalition

Bloc Positions

Large scale reform vs. mitigation measures

Some member nations may want to push for very grand change, including phasing out combustion engines, moving entirely to low and no-carbon energy sources, and revamping our electric grid. Other member nations may agree with those end goals but prefer to prioritize smaller immediate actions, including awareness campaigns or targeted health screenings.

Discussion Questions:

- Generally, the WHO has differentiated air pollution by ambient (outdoor) air pollution and indoor air pollution? How do the causes and health effects differ for these two types of air pollution?
- How do we identify and educate the affected populace most effectively on this public health issue?
- Which segments of the populace are more or less affected by this health crisis? Which regions or countries?
- What is the right balance between tackling this issue through regulation and legislation, and tackling this issue through education and awareness?
- How does this fit into the broader public health crisis of climate change as a public health crisis?
- Is there opportunity for countries to cooperate on regional or international efforts to tackle air pollution?

References and Additional Resources

Resources:

- WHO Air Pollution Home Page: https://www.who.int/health-topics/air-pollution#tab=tab_1
- WHO AQG Infographic: https://www.who.int/health-topics/air-pollution#tab=tab_1
- Who is most impacted infographic: https://www.paho.org/en/documents/infographic-who-most-impacted-air-pollution-2018
- Household Air Pollution Fact Sheet: https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health
- Ambient Air Pollution Fact Sheet: https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health
- Why Urban Health Matters: https://www.who.int/news-room/facts-in-pictures/detail/why-urban-health-matters