

# The Global Risks Report 2020

**Abstracted Chapter:**  
**False Positive**  
Health Systems under New  
Pressures

Insight Report | 15th Edition

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# The Global Risks Report 2020 15th Edition

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# False Positive

Health Systems under New Pressures





The institutions and approaches that have until now enabled health progress across the world are straining under gathering pressures and seem outmatched against new risks.

Health systems around the world are at risk of becoming unfit for purpose. Changing societal, environmental, demographic and technological patterns are straining their capacity. Vaccine hesitancy and drug resistance are undermining progress against pandemics, making it increasingly difficult to land the final blow

against some of humanity's biggest killers. Meanwhile, new vulnerabilities threaten to undo the dramatic gains in wellness and prosperity that health systems have supported over the last century. Non-communicable diseases (NCDs)—such as cardiovascular diseases or mental illness—have replaced infectious diseases as the leading cause of death. As existing health risks resurge and new ones emerge, humanity's past successes in overcoming health challenges are no guarantee of future results.

## The slowing of health progress

Global investments in health in recent decades have yielded substantial gains to both longevity and quality of life. Over the long history of our species, the average life expectancy at birth for people in most societies ranged from 20 to 50 years. Since 1950, this has improved significantly—to 72 years globally,<sup>1</sup> of which 63 years on average are lived in good health, free of disease or disability (see Figure 6.1).<sup>2</sup>

Many factors have contributed to this success: scientific breakthroughs; better hygiene, sanitation and nutrition; health policies and investments made possible by prosperity; international cooperation; and individual choices. Vaccines illustrate this point: after germ theory took hold in the late 19<sup>th</sup> century, scientists developed vaccines for many deadly infectious diseases including smallpox, measles, polio, pertussis, diphtheria, tetanus and tuberculosis. Smallpox—once among the deadliest diseases—was the first to be eradicated by national programmes and international cooperation in surveillance and containment, reinforced by people’s trust in health systems and their willingness to be vaccinated. Coordinated immunization programmes continue to prevent millions of deaths annually.<sup>3</sup>

However, strained health systems are leading to worrying trends. Gains in lifespan and healthspan (the number of years spent in good health) seem to be slowing in both developed and developing countries.<sup>4</sup> For example, recent data published by the Centers for Disease Control and Prevention shows that US life expectancy declined in 2017 for the third year in a row, the longest sustained drop for a century—since the combined effects of World War I and a global influenza pandemic.<sup>5</sup> In Singapore, although life expectancy has increased since 1990, people are spending more of their lives in sickness.<sup>6</sup> Disparities in health outcomes persist within and across countries. A baby born in Hong Kong can expect to live for 85 years, versus just 52 years in the Central African Republic (Figure 6.1).<sup>7</sup> Meanwhile, rich-poor health gaps are growing in countries including the United Kingdom and the United States.<sup>8</sup>

## Pressures on health systems

Gathering pressures are straining health systems on many fronts. In this section, we discuss long-standing challenges as well as the next generation of health pressures that health systems are now confronting.

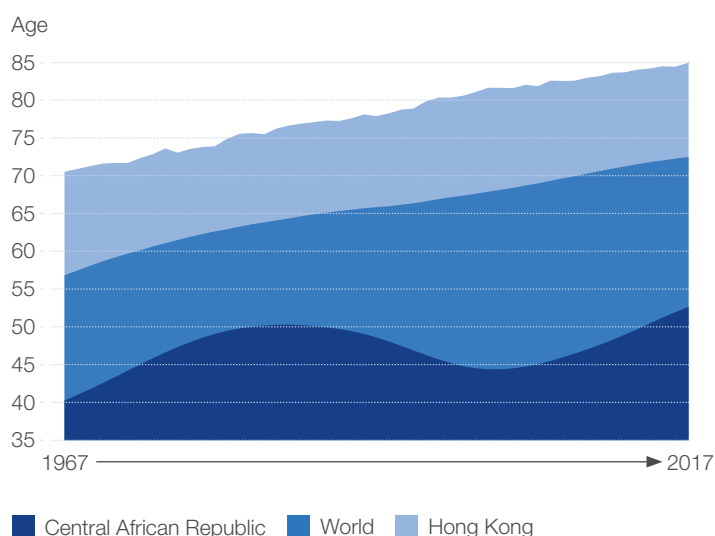
### Familiar foes

There is no guarantee that health systems will continue to improve health, and clear signs of strain are apparent. Despite historic, hard-won success against diseases such as smallpox, some of humanity’s most formidable global health threats still linger—and other threats, thought to have been quashed, are resurgent.

**Persisting pandemics.** Thirty years ago, polio was endemic in 125 countries, causing 350,000 clinical cases per year. After an extraordinary international effort and US\$20 billion in investment, today there are 99.9% fewer cases and polio remains endemic in only Afghanistan, Pakistan and possibly Nigeria—where geopolitical challenges have complicated eradication.<sup>9</sup> Polio could potentially be eradicated in the next four years—but the estimated cost to make that happen would be another US\$4.2 billion.<sup>10</sup> The last mile is proving the hardest, for reasons including persistent political instability and community

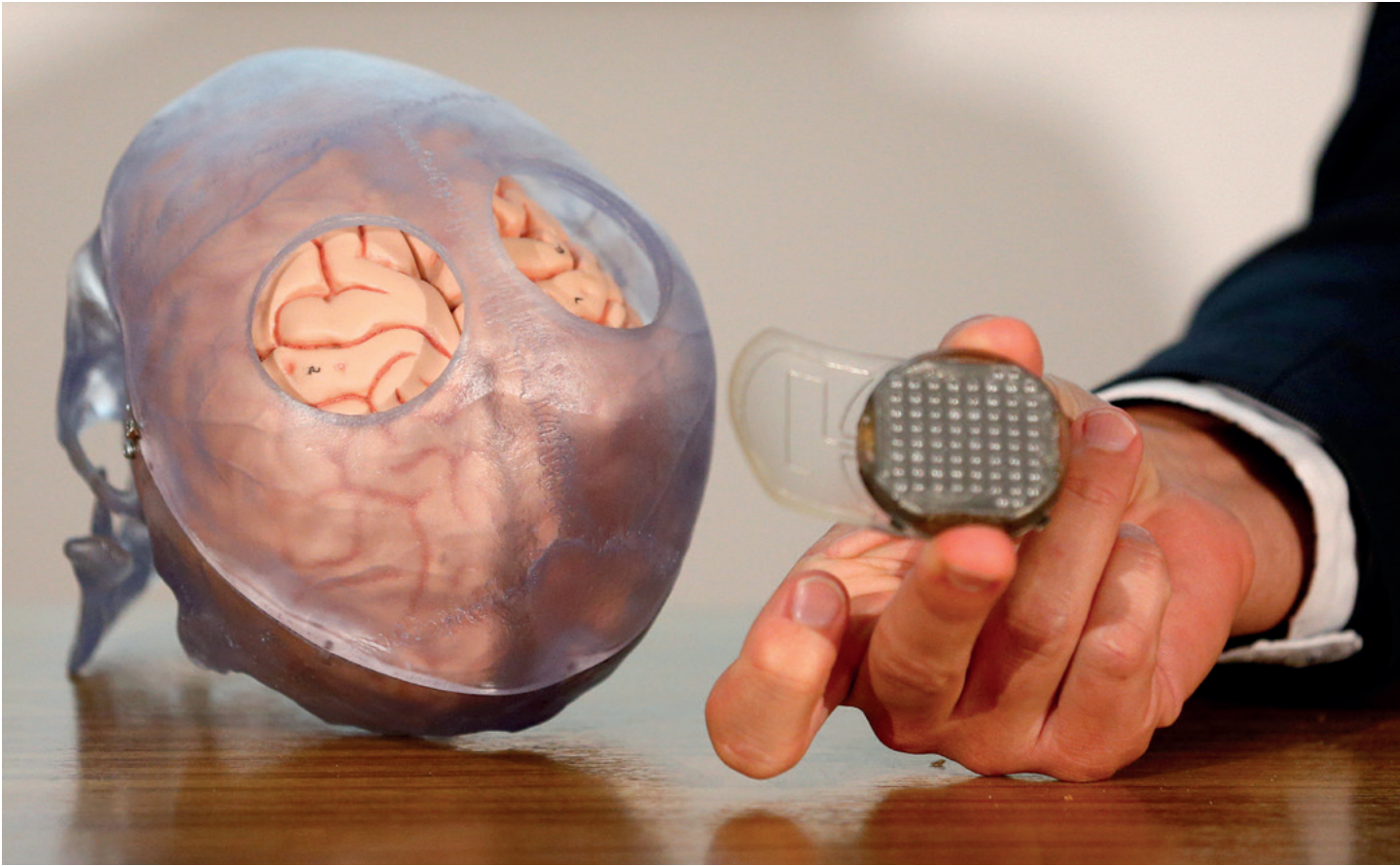
FIGURE 6.1

### Life Expectancy at Birth, 1967–2017



Source: World Bank Open Data, <https://data.worldbank.org/>, accessed 15 December 2019.





resistance—which often stems in part from a perception that investments in polio eradication come at the expense of other health priorities.<sup>11</sup> Letting up is not an option because the short- and long-term benefits of eradicating this enduring scourge would be massive.

Similar stories can be told about HIV/AIDS, tuberculosis and malaria. After years of remarkable progress as a result of sustained political commitment and funding via the Global Fund, ambitions to end these epidemics by 2030 are being undermined by factors such as diseases' increasing resistance to drugs.<sup>12</sup>

**Vaccine hesitancy.** The World Health Organization (WHO) considers reluctance or refusal to vaccinate to be among the top 10 threats to global health.<sup>13</sup> Growing vaccine hesitancy has led to outbreaks of measles worldwide, including in developed countries where it had largely been eliminated.<sup>14</sup> New York City spent US\$6 million in 2019 responding to a completely preventable measles outbreak.<sup>15</sup> Making fewer headlines than the massive Ebola outbreak in the Democratic Republic of Congo, that country

## 33 years: widest gap in life expectancy between countries

also recently saw the world's largest measles outbreak, affecting over 200,000 people in less than a year.<sup>16</sup> The resurgence of measles is a symptom of complacency and recklessness.

**Antimicrobial resistance (AMR).** As measles and other infectious diseases strain health systems by siphoning off limited resources and attention, overuse of antibiotics poses a direct threat to health and healthcare. AMR makes antibiotics less effective at treating illnesses. Surgeries that have become routine, infections we now think of as easily treatable, and some common illnesses could again become life-threatening.<sup>17</sup> The WHO estimates that AMR could result in 10 million deaths by 2050.<sup>18</sup>

**Global health security risks.**

Considerable progress has been made since the Ebola epidemic in West Africa in 2014–2016, but health systems worldwide are still under-prepared for significant outbreaks of other emerging infectious diseases, such as SARS, Zika and MERS. A recent first-of-its-kind comprehensive assessment of health security and related capabilities across 195 countries found fundamental weaknesses around the world: no country is fully prepared to handle an epidemic or pandemic.<sup>19</sup> Meanwhile, our collective vulnerability to the societal and economic impacts of infectious disease crises appears to be increasing.<sup>20</sup>

Serious as these risks are, it can be argued that health systems nonetheless have a blueprint to mitigate them, and success requires only adequate attention. The same cannot be said for new health risks.

**Emerging Risks**

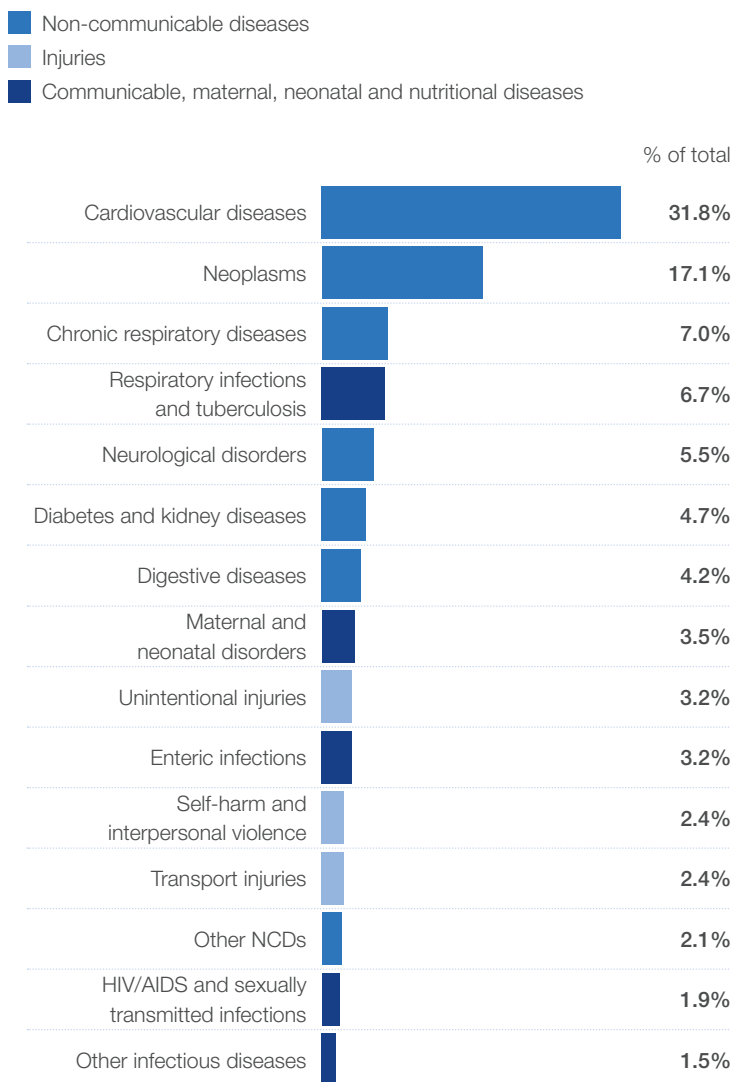
Longevity, lifestyle and climate changes are transforming disease burdens. Health systems need new infrastructure, resources and skills, but in many parts of the world they are failing to adapt—even as healthcare spending soars to unsustainable levels.

**Non-communicable diseases (NCDs).**

As populations grow, age and urbanize, NCDs and mental disorders have replaced infectious diseases as the leading threats to health and health systems worldwide. Once considered diseases of the rich world—linked to low-quality diets, little exercise and the use of tobacco and alcohol—chronic and degenerative conditions are now a global epidemic (see Figure 6.2). They account for 41 million deaths each year, of which 85% are in low- and middle-income countries, where people might grow old and ill before they become rich.<sup>21</sup> By 2030, the WHO expects this figure to increase by 11 million, reaching 52 million in total, and deaths from infectious diseases to decline by 7 million.<sup>22</sup> Depression and anxiety disorders are on the rise—they increased by 54% and 42% respectively from 1990 to 2013, according to WHO data.<sup>23</sup> Currently 700 million people worldwide are estimated to have a mental disorder.<sup>24</sup>

While infectious diseases and pandemics pose an acute threat to human life, NCDs have a gradually crippling effect on the well-being of individuals and societies. Besides causing enormous physical and psychological suffering, the four leading NCDs—heart disease, cancer, diabetes and respiratory diseases, along with mental illness—could have cost the global economy an estimated US\$47 trillion (in treatment and lost productivity) over the 2010s and 2020s.<sup>25</sup> Dementia is expected to cost a further US\$2 trillion by 2030,<sup>26</sup> as each year brings 10 million new cases.<sup>27</sup> NCDs and mental disorders are difficult to prevent and treat as they stem from varied and complex causes, develop slowly, and often co-exist with other chronic conditions. Effective interventions need to target both individuals and

FIGURE 6.2  
**Top Global Causes of Death, 2017**



Source: IHME (Institute for Health Metrics and Evaluation), *Global Burden of Disease Study 2017*, <http://www.healthdata.org/policy-report/findings-global-burden-disease-study-2017>

# Dementia affects 10 million more people each year

populations, overcoming entrenched habits and commercial interests. Even in richer countries, the medical and social care costs of NCDs could bankrupt health systems.

NCDs could also disrupt societal cohesion: growing health inequalities could widen economic inequalities, earlier onset among younger people could stifle the economic growth necessary to fund care for older people, and ageing electorates could prioritize spending on pensions and healthcare over other issues such as education, infrastructure and climate resilience.

**Climate change health effects.** The WHO deems climate change to be “the greatest threat to global health in the 21st century”.<sup>28</sup> Human-induced climate change is already impacting the health of millions and challenging health systems globally.<sup>29</sup> It affects the quality of the air we breathe and both the quality and quantity of the water we drink and the food we eat. Air pollution is already costing the world more than US\$5 trillion from decreased productivity every year.<sup>30</sup> Extreme weather conditions are putting populations around the world at risk of food and water insecurity. Today’s children face a future of increasingly serious climate-related hazards: less nutritious crops, air pollution exacerbated by burning fossil fuels, rising average temperatures and other weather-related disruptions to livelihoods.<sup>31</sup>

Climate change also exacerbates the incidence of infectious diseases. Warming temperatures are expanding mosquito-friendly habitats beyond the tropics, spreading diseases such as malaria, dengue, yellow fever, West Nile virus and Zika into new regions. In 2015, the El Niño effect allowed Zika to spread from Brazil to the rest of South America.<sup>32</sup> In 2012, the United States logged a record 5,500 cases of West Nile virus and an increase of 70% in dengue fever.<sup>33</sup> By 2080, extreme global warming could expose a billion people to mosquito-borne diseases in previously unaffected regions such as Europe and East Africa.<sup>34</sup>



REUTERS/VALENTYN OGIRENKO

**Demand–capacity mismatch.** As more people live for longer with increasing health and social care needs, and as new drugs and technologies are developed, surging demand and expectations are stretching current approaches to financing care. Health expenditure growth is outpacing inflation in most countries.<sup>35</sup> It has reached an unsustainable 18% of GDP in the United States,<sup>36</sup> resulting in an increasing transfer of financial risk from insurance companies to individuals through rising premiums, co-pays and deductibles; and in bipartisan anger over drug prices, hospital bills and out-of-pocket spending.

Most health systems continue to focus on reactive care in hospitals—detecting and treating disease—and give too little attention to NCD prevention and control. They have yet to adapt their infrastructure to combine online, remote and retail care settings to improve information, screening, treatment and support for patients and carers. Health systems—and governments more broadly—will also need better health policies, regulations and promotion strategies to reduce environmental and lifestyle risk factors of NCDs.



**Workforce limitations.** Most health systems are training and retaining too few doctors, nurses and other health workers. For example, the UK National Health Service has an estimated 94,000 unfilled vacancies in hospital and community services<sup>37</sup>—almost 8% of its total workforce—and risks an exodus due to burnout and low morale.<sup>38</sup> Disparities persist across countries, regions, care levels and areas of medicine. Nearly half of the world’s population lives in countries with over 100,000 people for every psychiatrist.<sup>39</sup> Even in the United States, with 10.8 psychiatrists per 100,000 people, almost half of those currently practising are expected to retire soon.<sup>40</sup> The brain drain of health workers places further strain on poorer and rural parts of the world.

## New breakthroughs, new risks

Transformative technologies, medicines and insurance that could vastly improve the reach and quality of healthcare are on the horizon—but they also bring new risks and trade-offs for health systems and societies.



ultimately make it possible for everyone—even in currently fragile, over-burdened health systems—to access high-quality, consistent, affordable, timely and convenient care.

But new technologies also raise risks, including risks of compromising patient safety and privacy, as well as introducing bias. Errors by individual health workers affect only their patients, whereas the consequences of AI errors could unfold at a whole new scale. Since training data sets in health often skew white and male,<sup>44</sup> AI could fail to spot symptoms or devise effective treatment plans for everyone else. These outcomes will be tough to predict or avoid because AI’s black-box nature makes it difficult to understand how it reaches conclusions—making it hard to spot bias. Health data are especially vulnerable to cyberattacks,<sup>45</sup> with risks of individuals being identified even from anonymized data (see Chapter 5, Wild Wide Web).

**Pharmaceutical revolution.** Highly complex, specialized new drugs promise radically better treatment for devastating diseases—but they come at exorbitant prices. For example, three recently launched cell and gene therapies cost up to US\$2 million per patient. Over the next few years, between 15 and 30 new

US\$  
**2 million:**  
cost per patient of recent cell  
and gene therapies

**Disruptive technologies.** Over the centuries health systems have embraced many innovations, sometimes without waiting for them to be proven safe and effective. Healthcare providers and payers are already using today’s emerging technologies—machine learning and artificial intelligence (AI), sensors, digital therapies, telemedicine and so on—to support both clinical and operational decisions: to triage symptoms,<sup>41</sup> interpret diagnostic tests,<sup>42</sup> create personalized treatment plans<sup>43</sup> and predict re-admissions at a hospital or epidemics in a population. Combined with human capacity, these technologies could



REUTERS/YVES HERMAN/ILLUSTRATION

million-dollar drugs are expected to enter the market, mostly for cancer.<sup>46</sup> New pricing models—such as multi-year payments contingent on patient outcomes—are starting to emerge to address the high costs and risks of these treatments.

But health systems are finding it difficult to adapt amid questions over who should pay, how high a price can be justified, and what can be given up to afford new therapies. As people's expectations rise, unequal access to better therapies could deepen health inequalities within and across countries, eroding trust in health systems and societal cohesion. In the longer run, if (or when) gene-editing technologies become available to enhance physical, cognitive or behavioural capabilities, these could result in a society of genetically enhanced haves and the merely natural have-nots.

**Risk pools of one.** Health insurance looks set to be transformed by big data and analytics. As with in-car devices used by car insurers to reward responsible drivers with lower premiums, health insurers can (with the consent of customers and the appropriate levels of data security), capture, store and analyse personal health and behavioural data from wearable—and eventually implantable—devices. Personalized risk assessment

could lead to rewards and incentives for people to live healthier lifestyles, but if unchecked by regulation, it could also potentially put insurance beyond the reach of people judged to be higher risk for genetic, environmental or behavioural reasons.

In some jurisdictions, steps have already been taken to mitigate this risk in response to the concerns of people who have taken predictive genetic tests for certain diseases. In 2018, the UK Government, together with the Association of British Insurers (ABI), consolidated existing agreements on the use of genetic information and created the Code on Genetic Testing and Insurance. Given the rapid advances taking place in genetic research, this Code will be reviewed every three years to consider the technical, ethical and societal implications of insurability. Among other principles, the Code commits insurance companies to treat applicants for insurance fairly and not require or pressure any applicant to undertake a predictive or diagnostic genetic test.<sup>47</sup>

## Ubiquitous risks of a weak health system

Good health is the foundation for societal well-being and a dynamic and prosperous economy.<sup>48</sup> Health systems form part of countries' critical infrastructure: they are vital to security, resilience and growth. At the population level, health underpins productivity. Well-functioning health systems enable countries to respond to, and recover from, natural and human-made disruptions. Weak systems let pathogens and diseases spread because they fail to address fake news about healthcare and preventive care, psychological responses of fear and despair, and lack of compliance with health professionals' requests.<sup>49</sup>

Like climate change, health risks pose an expensive and expanding transnational challenge. Around the world, health systems need to take a critical look at the fitness of their current approaches and institutions if we are to maintain the progress of the last century and tackle emerging threats. When health systems fail to mitigate vulnerabilities and adapt to changing contexts, they increase the likelihood of economic crises, political instability, social ruptures and state-on-state conflict.



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