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Book

Human arrogance and epidemics

There was a time not so long ago, in the early 1990s, when warnings about emerging epidemics and infectious diseases were derided, the Cassandras were mocked, and the power of human ingenuity and countermeasures were hailed. Globalisation of HIV/AIDS, of course, curbed such hubris, but medical and public health leaders, including the top tiers of WHO, viewed HIV as an exception to the rule. And as Michael Merson and Stephen Inrig detail in their agonising account The AIDS Pandemic: Searching for a Global Response, that notion of AIDS exceptionalism spawned an international non-response that allowed the virus to sweep across the world, becoming the third largest pandemic in human history.

When I published The Coming Plague: Newly Emerging Diseases in a World Out of Balance in 1994, I was partly motivated by the need to help reframe the response to HIV and replace the shame, stigma, and hatred with a larger biological context that recognised a looming crisis in human relations with the microbial world. I looked at antibiotic resistant bacteria, tuberculosis, Machupo virus, Ebola virus disease, Lassa fever, and other microbes, detailing what was known about where the pathogens came from and what human and ecological trends amplified outbreaks and spread pandemics. A chorus of doubt arose from some commentators, although scientists and public health experts generally echoed the thesis. The doubters insisted resources should shift from infectious diseases to non-communicable ones.

While that false tension between infectious and non-communicable priorities persists, dividing health advocates and spawning squabbles over resources, new, mutated, and resurgent microbial outbreaks since 1994 have silenced all legitimate claims that infectious disease threats could be relegated to the past. The failures in the global response to the emergence of Ebola virus disease in west Africa in 2014–15 sealed the deal.

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Today, health security and pandemic preparedness involve hundreds of organisations, initiatives, governing agencies, technologies, and businesses. Some of the efforts have already faltered, a few are promising. But all of humanity’s attempts to forestall epidemics and bring speed and justice to global responses to outbreaks ultimately depend on a combination of political will, finances, biology, wisdom, and public health.

In his new book The End of Epidemics: the Looming Threat to Humanity and How to Stop It, Jonathan Quick, former President and CEO of Management Sciences for Health (MSH), rifles through the morass of preparedness and response initiatives and policy ideas that have arisen since 2014, synthesising a seven-point programme for epidemic prevention. MSH, a Boston-based health administration company, ranks in the top 30 of contractors that receive funds annually to implement US Government global health programmes, emphasising cost efficiency, linkages between public and private sectors, and accountable movement of finances. Outbreak maven will find little in Quick’s book to object to, as it presents a cogent summary of conventional wisdom on the topic. And because his background is in the management side of health, Quick offers a humane, readable, coherent analysis for would-be health leaders and disease responders, organised simultaneously as a handy reference tool for crisis response, and an outbreak explainer that in parts, thanks to assisting science writer Bronwyn Fryer, sizzles. Writing of the 1997 death of 3-year-old Lam Hoi-Ka from H5N1 influenza in Hong Kong, Quick and Fryer write, “When Keiji Fukuda, an epidemiology expert at WHO, was asked what his first thought had been upon hearing the news that a brand new flu virus had killed a child, Fukuda replied that he remembered thinking, ‘This is how it begins.’”

Lam’s death and Fukuda’s reaction bring drama. But by mid-February, 2018, the USA was in the grips of influenza A H3N2 that, in combination with at least four co-circulating influenzas, had killed 84 children, was responsible for 10% of all deaths in the nation during the week of Feb 8, 2018, and averaged 4000 adult deaths per week. Although considered seasonal influenza, within 3 months of emergence it was on track to be the largest and deadliest influenza epidemic in the USA in at least a decade. As The Washington Post put it, “This flu season has now reached pandemic levels (but it’s not technically a pandemic).”

Influenza A H3N2 arrived in the USA with plenty of advance warning. The same H3N2 strain had already caused the worst influenza epidemic Australia had ever recorded. The strain, along with its complicated host of co-circulating influenza A and B and adenoviruses, hit the southern hemisphere during the winter of 2017, and swept north into Europe and North America months later. Despite ample warning, the northern hemisphere was caught off guard: influenza vaccine proved as little as 10% effective for influenza A H3N2; stocks of neuraminidase inhibitors were inadequate, and any new forms of governance or control of the
sort Quick advocates—especially, “courageous and dogged leaders at all levels”—were non-existent. Indeed, the epidemic exploded in the USA while US President Donald Trump said nothing about it and went months without appointing a new Director for the Centers for Disease Control and Prevention (CDC), spread as Brenda Fitzgerald finally settled into the job, and continues after that CDC Director’s resignation amid disclosure of her investments in tobacco companies. The CDC staff and its counterparts in health agencies nationwide struggled to count and control the widening influenza epidemic even as the White House called for a US$1 billion cut and US Congress slashed a host of federal programmes that local health departments relied upon. Political will? Forget about it.

The problem with finding solutions to epidemic threats—or even ending them, as Quick audaciously proposes—is that everybody views dangerous microbes through their own professional or emotional lens. Quick summarises and supports the lens of global health leaders at the World Bank, WHO’s outbreak control groups, the US CDC’s global health programme, the previous US administration of Barack Obama, and Angela Merkel’s leadership of the G20. It’s a health security framework that envisions investment in technological and medical methods for disease detection, prevention, control, and treatment, together with well funded systems of governance at all tiers of society. Quick embraces elements of added frameworks, such as the One Health movement that seeks to integrate wildlife, veterinary, and human health surveillance and response.

But there are plenty in leadership, including the Director-General of WHO, who insist that provision of universal health coverage (UHC) is the primary element of epidemic prevention. As WHO’s leader, Tedros Adhanom Ghebreyesus put it in a February speech in Dubai, “universal health coverage and health security are two sides of the same coin, and to invest in strengthening the fabric of health systems everywhere” is the key to “create a pandemic-free world”.

Provision of affordable UHC has not proven sufficient to forestall epidemics. The 2003 epidemic of severe acute respiratory syndrome (SARS) spread in countries with weak UHC systems—Canada and Singapore—and in nations that as matters of national policy aspired to attain UHC, notably China and Hong Kong. Global spread of SARS and new strains of virulent influenza has had as much to do with national and international politics as the presence, or absence, of affordable health delivery systems. Even when political will is in place, as is the case with fighting the spread of antimicrobial resistance, the failure to concretely mobilise action and avert catastrophes is frustrating, aggravating, and omnipresent in all nations, with or without UHC and sophisticated medical delivery. The Zika virus emerged in Latin America’s wealthiest nation, Brazil—a country that constitutionally guarantees UHC—in 2013, exploded in the country in 2015, and then spread across the Americas, eventually becoming an endemic, seasonal vector-borne agent throughout the region.

A few months before Quick’s book was published, the University of Minnesota’s Michael Osterholm and science writer Mark Olshaker released their book, Deadliest Enemy: Our War Against Killer Germs. Presenting a vision far grimmer than Quick’s aspirational perspective, Osterholm and Olshaker argue that nothing short of a Manhattan Project-scale mobilisation to discover, test, and mass-manufacture a universal influenza vaccine can offer hope. Further, Osterholm insists that, “As far as leadership, I do not believe traditional public health professionals will be able to lead us out of our current infectious disease complacency.”

On that point Jonathan Quick, whose book ends with a list of grassroots actions and points of popular mobilisation, seems to agree. Bemoaning the paucity of long-term political commitments and budgets to address outbreak detection and preparedness, he concedes, “I do not believe such commitments can be kept without a visible and vocal social movement aimed at ending epidemics. Given the pressure on leaders, it’s unlikely that sufficient attention will be paid to the risk of a pandemic without significant pressure from all of us.”

In the end, perspectives matter. Merson weathered the ugliest era of the AIDS pandemic, and is painfully aware of the failures and limitations inherent in the UN system and the panoply of allied global health institutions: he questions institutional capacity and will. Quick is a manager, at ease in both public and private sectors, adept at identifying solutions: he finds hope in social mobilisation. Osterholm is an epidemiologist outspoken about scientific errors and manmade microbial threats: he demands security. And WHO’s Director-General Tedros is a former Minister of Health who wants equitable access to medical care. Epidemic prevention and UHC are, for him, synonymous.

I look at the ecosystems that foster disease outbreaks, climate change pressure upon them, human global movement, environmental destruction, the evolution of viruses, fungi, archaea, and bacteria and simply marvel that any human being actually believes it possible to predict, identify, respond, and then control pathogenic changes in the microbial world. Humanity is in need of a strong anti-hubris vaccine. Laurie Garrett
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