Chapter 19
Conclusion

On July 17, 2014, Malaysian Air Flight MH17 was shot down over Ukraine during military actions related to Russia's annexing of Ukraine's Crimean peninsula. Tragic in its own regard (the attack killed all 298 people on board), the loss of innocent life on the flight was compounded for those in the AIDS[1] and global health communities when word emerged that its passengers included AIDS researchers and activists on their way to Melbourne, Australia, to attend the 20th International AIDS Conference.[2] Among the losses was Joep Lange, who had led the Global Programme on AIDS (GPA)'s clinical research and drug development activities (see Chapter 7).[3] Since leaving GPA in 1994, Lange had served as President of the International AIDS Society, promoted early and aggressive treatment of HIV infection, and become a strong advocate for access to low-cost treatment by calling for "a greater focus on health systems and on the integration of HIV services" and

Within this chapter the singular pronouns *I* and *my* refer to Michael Merson alone, whereas the plural pronouns *we* and *us* generally refer to Michael Merson and Stephen Inrig jointly. Where *we* or *us* refers to Michael Merson and his colleagues at WHO, the object of the pronoun is clarified by context.

[1] For the purposes of this text, we will use the term AIDS to encompass both AIDS and HIV unless otherwise specified.

[2] Ian Neubauer, "Top AIDS Researchers Killed in Malaysia Airlines Crash," *Time Magazine*, July 18, 2014, http://time.com/3003840/malaysia-airlines-ukraine-crash-top-aids-researchers-killed-aids2014-mh17/*AccessedJune18,2016.*http://www.cbc.ca/news/world/malaysia-airlines-mh17-what-we-k.

[3] Ibid.

M. Merson, S. Inrig, *The AIDS Pandemic*, DOI 10.1007/978-3-319-47133-4_19

championing pre-exposure prophylaxis (PrEP).[4] "'You could usually get a cold Coke in a sub-Saharan village,' he observed. 'So there was no reason why you shouldn't be able to get anti-AIDS drugs to the same place.'"[5]

The loss of Lange and others on the MH17 flight was a powerful reminder of the remarkable people engaged in global health, many of whom I was fortunate to have worked with in GPA. Lange and others, in the words of United States President Barack Obama, were "focused on what can be built rather than what can be destroyed."[6] The purpose of this book has been to explore how different people, institutions, and nations have sought to respond to the AIDS pandemic, and the factors that have supported or hindered those efforts. Often what provided the best support has been the relentless commitment to humanity as exhibited by Lange and others on board that doomed flight. Often, what has most hampered these efforts seem petty in the big picture: personal disagreements between individuals; the supremacy of national over international interests; and the desire to retain complete autonomy over one's little piece of institutional pie.

But the reality is that, since the first reported AIDS cases in the early 1980s, almost 78 million people have acquired HIV and 35 million persons have died of AIDS-related causes.[7] Within 5 years of its discovery, the AIDS pandemic posed a substantial challenge to the global health community.[8] The initial discovery of the disease among marginalized persons who often engaged in socially taboo practices rendered it ripe for stigma and discrimination, and the extent to which it had spread only heightened these challenges. HIV often existed at the intersection of a host of factors that rendered many populations vulnerable to infection while at the same

[4] Julio S. G. Montaner, Peter Reiss, David Cooper, Stefano Vella, Marianne Harris, Brian Conway, Mark A. Wainberg, D. Smith, Patrick Robinson, David Hall, Maureen Myers, and Joep M. A. Lange, for the INCAS Study Group, "A Randomized, Double-blind Trial Comparing Combinations of Nevirapine, Didanosine, and Zidovudine for HIV-Infected Patients: The INCAS Trial," *JAMA*, March 25, 1998, 279(12): 930–937. doi:10.1001/jama.279.12.930; H. Schuitemaker, M. Koot, N.A. Kootstra, M.W. Dercksen, R.E. de Goede, R.P. van Steenwijk, et al. "Biological phenotype of human immunodeficiency virus type 1 clones at different stages of infection: progression of disease is associated with a shift from monocytotropic to T-cell-tropic virus population." *J Virol*. 1992;66:1354–60; Zach Dubinsky, "Malaysia Airlines Flight MH17: AIDS scientist Joep Lange did pioneering research with Canadians," *CBC News*, July 18, 2014 http://www.cbc.ca/news/world/malaysia-airlines-flight-mh17-aids-scientist-joep-lange-did-pioneering-research-with-canadians-1.2710793; Chris Beyrer, Stefano Vella, and David A. Cooper, "In memoriam: Joep Lange MD, PhD," *J Int AIDS Soc*. 2014; 17(1): 19401; Zach Dubinsky, "Malaysia Airlines Flight MH17: AIDS scientist Joep Lange did pioneering research with Canadians," *CBC News*, July 18, 2014 http://www.cbc.ca/news/world/malaysia-airlines-flight-mh17-aids-scientist-joep-lange-did-pioneering-research-with-canadians-1.2710793; Chris Beyrer, Stefano Vella, and David A. Cooper, "In memoriam: Joep Lange MD, PhD," *J Int AIDS Soc*. 2014; 17(1): 19401; "Obituary: Joep Lange," *The Economist*, July 26, 2014.

[5] "Obituary: Joep Lange," *The Economist*, July 26, 2014.

[6] Barack Obama, "The President Makes a Statement on Ukraine," Whitehouse.gov, July 18, 2014, https://www.whitehouse.gov/photos-and-video/video/2014/07/18/president-makes-statement-ukraine

[7] UNAIDS Fact Sheet 2016 http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf.

[8] Ibid.

time blocking them from effective prevention and compassionate care. What type of organization or effort did the global community need to respond appropriately to the complex human crisis that was—and is—the global AIDS pandemic?

In this book, we have related the various paths that the global health community has taken over the years to answer this question. The first solution settled upon and arrived at through a process of abdication, opportunism, and consensus—was that the World Health Organization (WHO) should direct and coordinate the global response to the pandemic. This sprang from the tireless efforts of first Fakhry Assaad and then Jonathan Mann at WHO headquarters in Geneva. They initially had to overcome resistance from senior WHO officials, who were reluctant for WHO to take on a "social" disease thought primarily to be a "first world" problem. Ultimately, and unfortunately, 5 years passed before WHO Director-General, Halfdan Mahler agreed to view AIDS as a disease worthy of WHO's global attention. Discussions ensued as to whether a United Nations (UN) cosponsored program or new agency might be best to address such a complex and socially controversial problem. Eventually convinced of the importance and gravity of the disease, and viewing it first and foremost as a health problem, Mahler fought to keep the response housed within WHO. Recognizing the sizable challenge and inherent weaknesses of WHO's governance and structure, Mahler gave Mann considerable autonomy establishing GPA, allowing it to operate directly out of his office in ways similar to the successful Smallpox Eradication Program a decade earlier.

Mann, more than anyone else, informed the world about the catastrophic pandemic that lay ahead, and established GPA as the prime entity directing and coordinating the global response to the pandemic. He rapidly recruited a large and highly dedicated staff and raised a considerable amount of resources from donor governments, giving GPA the ability to rapidly help governments in nearly all low- and middle-income countries establish national AIDS programs. He also formulated a Global AIDS Strategy, providing HIV policy and prevention guidance to all countries. Working with the blessing of Mahler, Mann leveraged the resources of other UN and international organizations while maintaining WHO's authority.

A mere 3 years after GPA was established, many of the program's donors and observers, had become dissatisfied with the program's performance. The pandemic, meanwhile, continued to expand unabated. Mann's leadership was simultaneously inspiring and challenging to people both inside and outside WHO. Some saw his approach as insufficient to the challenges ahead, while others found fault in WHO's structure, its new leadership under Director-General Hiroshi Nakajima, and its penchant to see AIDS through a strictly biomedical lens. Blocked bureaucratically from implementing a program with a strong focus on human rights and frustrated by the constraints placed on him by Nakajima, Mann abruptly resigned as GPA Director in March 1990, strongly criticizing Nakajima in the process.

Many deeply lamented Mann's departure from the global stage, and his resignation opened up the question about the primacy and leadership of WHO in the fight against AIDS. It was during this transition that other UN agencies launched their

own AIDS efforts, the most important of which was the United Nations Development Programme (UNDP)'s HIV and Development Program. It was also around this time that many donor nations began investing more energy and resources in their own bilateral AIDS programs. Moreover, there was growing dissatisfaction with Nakajima himself, who many considered incompetent and more concerned with preserving WHO's way of operating than ending the AIDS pandemic. His controversial reelection to a second term as Director-General caused great consternation among many of GPA's donors.

As Mann's successor, I found myself in a very challenging situation: I was associated with an increasingly unpopular Director-General, was inheriting staff with fierce loyalty to Mann, and did not have anywhere near the charisma that he possessed.[9] Nevertheless, GPA moved forward: we placed a strong emphasis on traditional public health approaches and program management to improve national programs, established solid initiatives in such areas as comprehensive care, sexually transmitted diseases (STDs)[10], and blood safety, carried out a robust research agenda, and did our best to provide accountability for the resources we received. However, after conducting an external review of the program, GPA's oversight body decided to close down GPA despite its brief tenure and create a new global AIDS governance structure in its place, one they felt would ensure better coordination and collaboration particularly among the UN agencies.

After months of discussions to find the most appropriate programmatic alternative, the donor community settled on the establishment of a new joint and cosponsored program on HIV/AIDS, which became known as UNAIDS. GPA closed down on December 31, 1995, and UNAIDS opened its doors the next day amidst much excitement. Problems soon arose, however, when Peter Piot—the Executive Director of the new program—realized that some of the UN cosponsors, despite their agreement to the formation of UNAIDS, had little interest in supporting the program. Also, donor nations were neither willing to compel them to work together nor provide the budgetary resources the program needed.

The situation dramatically changed around the turn of the last century when Highly Active Antiretroviral Therapy (HAART), which had been discovered in 1996, became available and affordable. In 2001, the UN General Assembly adopted a declaration at a special session that committed Heads of State to seriously fight the pandemic, following which a number of agencies and organizations committed substantial additional resources. Over only a few years, a number of institutions, some of them new, stood alongside UNAIDS, each with their own assets and vision about the appropriate global response. These included the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the United States government's President's Emergency Plan for AIDS Relief (PEPFAR) program, a newly committed WHO, and the Bill & Melinda Gates Foundation. WHO had far less resources at its disposal than all the other organizations. While the donors and UN

[9] Dennis Altman, the Australian human rights activist, referred to as a "poisoned chalice." Denis Altman, Interview by Michael Merson, November 2, 2001.

[10] For the purposes of this text, we use the term sexually transmitted disease(s) and the abbreviation STD rather than the other term sexually transmitted infection(s) or STIs.

cosponsors had originally designated UNAIDS to take the lead in coordinating the global response, it was clear by the mid 2000s that despite Piot's hard work and impassioned advocacy, UNAIDS would only play a limited though important role, serving as the global health community's main multi-lateral contributor and as a major global champion for the response. Beyond whatever limitations UNAIDS may have had, advances in AIDS treatment, the desire by donors to have greater control over their resources, and the significant increase in funds from various organizations generated an increasingly patchwork response globally and in countries. This again raised questions about the most effective way to move forward against the pandemic.

Within the last few years, the situation has changed. The discovery that early treatment with antiretroviral therapy (ART) could not only effectively prevent death from AIDS but also prevent transmission of the virus has raised tremendous hope and optimism that the "end of AIDS" is in sight. The existence of effective treatment reenergized the AIDS response and fostered a new political declaration of commitment to fight AIDS by Member States at a high-level UN General Assembly Special Session in 2011. At the 20th AIDS International Conference in Melbourne in August 2014, the UNAIDS Executive Director Michel Sidibé, who succeeded Piot, let the world know that "The AIDS epidemic can be ended in every region, in every country, in every location, in every population and every community."[11] This goal was endorsed at another high-level UN General Assembly Special Session in 2016. While this goal may not be fully attainable and is fraught with many challenges, not the least of which is complacency, there are reasons to think that it might be possible to end the AIDS pandemic as a major public health threat by 2030.[12]

A UNAIDS-Lancet Commission report on Defeating AIDS-Advancing Global Health published in June 2015 laid out a series of guiding principles and recommendations to achieve this goal.[13] It will require, not just significant increases in access to ART, but also scale up in prevention programs, such as male circumcision, PrEP (Pre-exposure prophylaxis), prevention to mother to child transmission, behavioral interventions and—ideally—an effective HIV vaccine. Additionally, despite the progress made destigmatizing AIDS and its associated behaviors, there remains a constant threat that nations will take measures that threaten the human rights of HIV-positive persons (like the punitive laws recently adopted in Uganda).[14] AIDS advocates must confront these policies. Furthermore, we must also give greater attention to up-stream, structural interventions, such as a reduction of gender-based violence and access to social protection programs. Finally, many of

[11] Kate Kelland, "Global AIDS epidemic can be controlled by 2030, U.N. says," *Reuters*, Wed Jul 16, 2014.

[12] WM El-Sadr et al., *Science* 11 July 2014: Vol. 345 no. 6193 p. 166; Michel Sidibe, "The sustainable development agenda and the end of AIDS," *Lancet*, 386: 108–110, July 11, 2015.

[13] "A UNAIDS-Lancet Commission on Defeating AIDS-Advancing Global Health," *Lancet*, 11 July, 2015, 386(9989):171–218.

[14] Somini Sengupta, "Antigay laws gain global attention; countering them remains challenge." *NYT*, March 1, 2014.

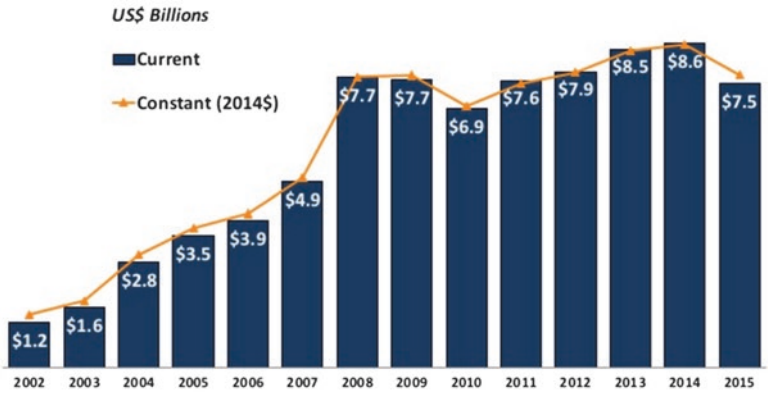

Fig. 19.1 International HIV assistance from donor governments: disbursements, 2002–2015. Source: Jennifer Kates, Adam Wexler, Eric Lief, "Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2015," Kaiser Family Foundation and UNAIDS, 2016.

the weaknesses that inhibited the global response during the past three decades remain today, including: short-term funding cycles of donors; inadequate coordination between international institutions; insufficient harmonization with national agendas and structures; duplication in evaluation reporting; insufficient attention to prevention; and an overreliance on biomedical approaches.[15] There is also concern about a rebound surge in the epidemic in sub-Saharan Africa, particularly among adolescent girls and young women.[16] Nevertheless, in many ways, there is reason to hope that the global health community has reached a turning point in the history of the AIDS pandemic.[17]

The history of the global response to AIDS has given us valuable insights into how to forge a coordinated and effective response to future pandemics. When one reflects on the logarithmic magnitude by which the global response to AIDS has increased in recent years, it is startling to realize that some 20 years ago, before the existence of the Global Fund, PEPFAR, or the World Bank Multi-Country AIDS Programs, international AIDS assistance from donor governments to low- and middle-income countries hovered around $250 million annually. This is a minute

[15] A UNAIDS-Lancet Commission on Defeating AIDS-Advancing Global Health," *Lancet*, 11 July, 2015; 386(9989): 171–218.

[16] Leaders from around the world are ALL In to end the AIDS epidemic among adolescents. Unicef 2015. Accessed on May 5 at https://www.unicef.org/media/media_79820.html

[17] Richard. Horton, "Offline: Ending the AIDS epidemic," *The Lancet*, 384(9941):388, 2 August, 2014.

fraction of the $8.5 billion in assistance provided in 2013[18] and the $8.6 billion in 2014.[19] While donor funding declined to $7.5 billion in 2015 (a 13% decline), (Fig. 19.1), some of this decrease was due to currency fluctuations and a number of disbursement timing issues (making the actual decline 8%).[20] Fortunately, low- and middle-income countries are providng more domestic resources. Domestic funding reached an estimated $19.2 billion in 2015, accounting for 57% of total AIDS funding that year. This, as well as private sector funding, needs to continue to increase as donors (particularly in Europe) implement fiscal austerity measures and shift much of their development assistance to programs dealing with the influx of refugees to Europe from the Middle East. Unfortunately, these changing financial commitments are coming when there is an estimated $11 billion annual price tag for meeting the 90-90-90 targets[21] and still major gaps in funding for HIV prevention. At the time of this writing, for example, only 20% of global AIDS resources target prevention services.[22]

What lessons have we learned from the history of the global response to AIDS? We have identified at least seven, though we are confident that there are more.[23] The first lesson is that the world is capable of responding to new pandemics like AIDS. However, the history of GPA and of UNAIDS demonstrates that, when responding, donor countries can be impulsive (when launching and supporting new programs) and impatient (when demanding results), and tend to shift strategies to pursue short-term solutions for complex problems. As Jim Sherry has suggested, global governance around AIDS has often been reactive, rather than intentional and farsighted.[24] Donor nations in the fifth year of the pandemic established the WHO's

[18] Jennifer Kates, Adam Wexler, Eric Lief, Carlos Avila, and Benjamin Gobet, "Financing the Response to AIDS in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2010," Menlo Park, CA and Geneva: Kaiser Family Foundation and UNAIDS, 2011, 7347-07; Jennifer Kates, Adam Wexler, Eric Lief, "Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2013," Menlo Park, CA and Geneva: Kaiser Family Foundation and UNAIDS, 2014 https://kaiserfamilyfoundation.files.wordpress.com/2014/07/7347-10-financing-the-response-to-hiv-in-low-and-middle-income-countries.pdf.

[19] Kaiser Family Foundation and UNAIDS, Financing the Response to HIV in Low and Middle Income Countries, International Assistance from Donor Governments 2014, July 2015.

[20] Jennifer Kates, Adam Wexler, Eric Lief, "Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2015," Kaiser Family Foundation and UNAIDS, 2016. http://files.kff.org/attachment/report-financing-the-response-to-aids-in-low-and-middle-income-countries-international-assistance-from-donor-governments-in-2014.

[21] Granich, Reuben, et al. "90-90-90 and ending AIDS: necessary and feasible," *The Lancet* 390.10092 (2017): 341–343.

[22] *Prevention GAP report*. Geneva: UNAIDS 2016 http://www.unaids.org/sites/default/files/media_asset/2016-prevention-gap-report_en.pdf.

[23] See, for example, Ronald O. Valdiserri, ed., *Dawning Answers: How the HIV/AIDS Epidemic Has Helped to Strengthen Public Health,* New York: Oxford University Press, 2003.

[24] Jim Sherry, Interview by Michael Merson, Geneva, October, 2001.

Special Programme on AIDS, which quickly evolved into GPA, and provided it with an unprecedented amount of financial support. At its pinnacle, GPA was the largest international health program in history. Yet, only 8 years later, the same donors reacted to the perceived failure of GPA by dissolving it to create a new, more complex, though highly innovative joint and cosponsored United Nations Program, UNAIDS. Seven years after the launch of UNAIDS, the same donors reacted once again in part to the perceived shortcomings of UNAIDS, by creating the Global Fund to Fight AIDS, Tuberculosis and Malaria, giving it a budget twenty times larger than UNAIDS (rather than creating, for example, an AIDS fund managed by UNAIDS). Shortly after that, the United States government launched PEPFAR, the largest single health program in its history of foreign assistance and one that is dedicated to AIDS prevention, treatment, and care, now funneling less than 1% of its budget to UNAIDS.[25] At the same time, donors encouraged WHO to reenter the AIDS field with the launch of a new "3 by 5" initiative, which, though unable to meet its goals in time, did return WHO as a major player in the global response.

An important question to ask is whether the dissolution of GPA was necessary to achieve a stronger coordinated response to the AIDS pandemic. How much was this decision a result of the donor community's dissatisfaction with the overall performance of Hiroshi Nakajima as WHO Director-General and his controversial reelection in 1992? How much of it was a consequence of the donor community's unrealistic expectations of what GPA could achieve in such a short period of time against such a complex disease? How much of it was a result of the donor community's realization of WHO's limitations as an agency, particularly at regional and country level, especially in Africa? Also, was it a poor decision to create UNAIDS without ensuring it had a strong link to WHO? These questions are important because UNAIDS has found it difficult to create the hoped-for unified and well-coordinated global response among UN agencies, much less among donors, civil society, foundations, and the private sector. Moreover, the transition that occurred between GPA and UNAIDS was far from smooth. Most importantly, it created a crisis in many heavily affected countries, particularly in Africa, where national programs were abruptly devoid of crucial GPA support.

There are no simple right or wrong answers to these questions, but they deserve serious consideration. Had HAART therapy been available 3 years earlier, it is tempting to speculate that the donor community might have wanted GPA to maintain its leadership in the global response, strongly encouraging it to strengthen its efforts in coordination among UN agencies. In any event, donor nations should not underestimate the significant consequences of abolishing a global program, abruptly

[25] Congressional Budget Justification Supplement. President's Emergency Plan for AIDS Relief (PEPFAR). Fiscal year 2017. http://www.pepfar.gov/documents/organization/259634.pdf; See also Jennifer Kates, Adam Wexler, and Eric Lief, *Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2012*. Menlo Park, CA: The Henry J. Kaiser Family Foundation, September 2013, http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/document/2013/09/20130923_KFF_UNAIDS_Financing.pdf.

turning off the "response faucet," and transferring responsibilities to a new agency, particularly when confronting a quickly expanding global pandemic of a fatal disease. Before closing down an organization, one must be sure one can do better. If transitions like the one between GPA and UNAIDS occur again, they should be carried out carefully, responsibly, and with a clear understanding of the potential negative and unintended consequences such a decision may have, bearing in mind the challenges and resources required to mount a global response.[26]

Despite its well-known limitations, we expect the UN system will continue to be a key resource for governments. Consequently, and as we have seen in the history of UNAIDS, a second lesson learned (related to the first), is that donor nations need to more fully understand the realities and limitations of achieving a coordinated UN system. The experience of GPA and UNAIDS has shown us how the varying constituencies, mandates, histories, and governance structures of the UN agencies pose great challenges and obstacles for their successful collaboration. However, nations should encourage the UN system to operate more efficiently and effectively, which may on occasion require the establishment or dissolution of programs or agencies.

Our third lesson learned (also related to the first), concerns accountability. This book has provided a number of examples where the tail wagged the dog: that is, where personal animosities at the institutional level influenced or hindered the shape of the global response. As an example, UNAIDS understood that Nakajima and WHO had given their full cooperation and support to its establishment, and then within mere months, WHO sought to sabotage the new organization at global and regional levels. Another example was the ongoing effort by UNDP to maintain its own independent HIV program at all costs even after the creation of UNAIDS. These behaviors were enabled by the donors as they failed to provide the appropriate oversight that was required once they formed UNAIDS. Granted such supervision likely would have been diplomatically difficult and may not necessarily have been in their national interest. However, by not intervening, donors allowed these relationships to become poisonous and to negatively impact the global response. The lesson here is that international organizations and the donor community need to live up to their commitments, lest these institutional dysfunctions, as we have seen in the case of AIDS, wreak havoc on the lives of vulnerable people around the world.

There is consensus now that we cannot approach AIDS with an emergency response that only includes short-term "fixes."[27] Rather, we need to frame our global response as a struggle that will be with us for the foreseeable future. Mechanisms should exist which ensure organizations work closely together, synergistically rather than competitively or duplicatively. UNAIDS should resolve

[26] S. M. Bertozzi, T.E. Martz, P. Piot. "The evolving HIV/AIDS response and the urgent tasks ahead." *Health Affairs*. 2009 Nov–Dec;28(6):1578–90.

[27] Jennifer Kates, Adam Wexler, and Eric Lief, *Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2012.* Menlo Park, CA: The Henry J. Kaiser Family Foundation, September 2013.

differences on strategic and technical issues, work within the UN architecture to continue to set targets for ending the AIDS pandemic by 2030, monitor progress in meeting the 90-90-90 targets, and assess the impact of the various components of the UN's response under its United Budget, Results, and Accountability Framework. PEPFAR should continue its efforts to help accelerate prevention and treatment efforts in countries, and the Global Fund should function primarily as a financing institution, maintaining the strong transparency and accountability mechanisms they both have in place. While these organizations have demonstrated greater collaboration recently, this would be the time for them to join together in a new and energized alliance of all the global actors to achieve the 2030 goal.[28]

The history of the global response to AIDS also demonstrates that the reaction to complex, global health crises like AIDS must be comprehensive, balanced, and evidence based. It is unlikely that we will have a magic bullet for AIDS or for many other future global health threats. Consequently, a fourth lesson is that programs which address these large-scale threats need to address the entire continuum, from prevention and control to therapy and care, with research conducted as needed along the way. Programs need to carefully plan each step in the continuum to ensure positive, long-term outcomes. In most contexts, prevention is a slow process, and it becomes even more difficult when providers lack an effective vaccine and the disease itself evokes panic and discrimination. In the case of AIDS, prevention efforts must receive the same level of program support as treatment, with the goal of reducing the number of new infections (rather than just measuring process outcomes such as the number of condoms distributed).[29] Combination prevention often offers the best hope for success.[30] Also, mechanisms must be in place to ensure that new prevention technologies and drugs are accessible and affordable to those in greatest need. Finally, throughout all these steps we must continue to create supportive environments to fight the discrimination that AIDS still engenders.[31] This will ensure that infected persons and those at risk for infection can safely and openly seek prevention and treatment services.

A poignant and fifth lesson is the value in seeking a polyphonic, multifaceted response. An old Chinese proverb says that "one who is good with a hammer thinks everything is a nail." No doubt, in the case of AIDS, the clashes between proponents of the "biomedical model," the "human rights" model, and the "development" model certainly hardened the intransigence of those in each camp to collaborate with those in the other. The history of the global AIDS response has demonstrated that interventions addressing the sociostructural determinants of disease risk take considerable time to show results. Rather than viewing this as a sign of ineffectiveness, policy-makers should exhibit patience in waiting for their desired effect. In conjunction with these more structural interventions, public health practitioners

[28] End AIDS Coalition Creates Unprecedented Collaboration at 'Tipping Point' in AIDS Epidemic," End AIDS Coalition, July 25, 2017.

[29] Ibid.

[30] Ibid.

[31] Charles E. Rosenberg, "What Is an Epidemic? AIDS in Historical Perspective," *Daedalus*, Living with AIDS (Spring, 1989), 118(2):1–17.

must employ shorter term, biomedical or technical responses as a means to slow down transmission. To advocate for one of these responses at the expense of the other is folly. The SDGs open up greater possibilities for bringing tougher action inside and outside the health sector in addressing the social and economic drivers of HIV infection, as well as many other health problems.

A sixth lesson is the indispensable need for contextualized programs within a global response. AIDS may be a global phenomenon, but all epidemics are local: "The so-called 'global AIDS epidemic' is, in reality, an amalgamation of multiple local epidemics that often differ markedly from one another," noted the aids2031 Consortium.[32] This means that while some principles and technologies apply to AIDS everywhere—whether they be "the value of a rights-based approach" or the use of ARVs—no "carbon copy" strategy will work in every location. "Generic responses to heterogeneous problems waste money," notes Bertozzi et al.[33] We would add that they also waste lives because they often miss the target they are hoping to achieve. The epidemiological footprint of HIV in South Africa was and is different than the one in Romania, and what works in urban San Francisco may not work in rural North Carolina, much less in the slums of Sao Paolo.[34] The history of the global response illustrates the need to tailor HIV prevention responses to those most at risk,[35] and that those populations will differ—demographically and culturally—in their various regions and countries.

A seventh and final lesson from the history of the global AIDS response is that the inclusion of civil society is often essential to the appropriate tailoring of effective actions in a given locale. This has certainly been the case with AIDS. While the appropriate participatory role of non-governmental groups and persons living with HIV has differed for each society, this principle has been essential to the success of any AIDS strategy, whether local, national, or global. However, we stress that this inclusion must be "balanced" because we have also learned that support to non-governmental organizations (NGOs) must compliment and not come at the expense of support to government health systems.[36] Moreover, activists and health professionals must strike the appropriate balance between advocacy and public health delivery. Finding that right balance requires tradeoffs depending on the context, and may change over time as local epidemics evolve.

All these lessons place considerable weight on public health practitioners and policy-makers to strengthen their health systems and place priority on strong program

[32] The aids2031 Consortium. *AIDS: Taking a Long-Term View*. Upper Saddle River, NJ: FT Press Science, 2011, 6.

[33] S. M. Bertozzi, T.E. Martz, P. Piot. "The evolving HIV/AIDS response and the urgent tasks ahead." *Health Affairs*. 2009 Nov–Dec;28(6):1578–90.

[34] Stephen Inrig. *North Carolina and the Problem of AIDS*. Chapel Hill, NC: University of North Carolina Press, 2011; S. M. Bertozzi, T.E. Martz, P. Piot. "The evolving HIV/AIDS response and the urgent tasks ahead." *Health Affairs*. 2009 Nov–Dec;28(6):1578–90; The aids2031 Consortium. *AIDS: Taking a Long-Term View*. Upper Saddle River, NJ: FT Press Science, 2011, 6.

[35] S. M. Bertozzi, T.E. Martz, P. Piot. "The evolving HIV/AIDS response and the urgent tasks ahead." *Health Affairs*. 2009 Nov–Dec;28(6):1578–90.

[36] J Pfeiffer et al., "The End of AIDS and the NGO Code of Conduct," *The Lancet*, 384(9944), 639–640.

management. Solid management decisions allow programs to operate efficiently, anticipate the spread of the disease, and appropriately allocate resources. Today, with treatment playing such a crucial role in care and prevention, national AIDS programs must train management and staff to address what is now a chronic disease and implement a "planning horizon" that is longer than 5 years and includes providers along the hierarchy of the health system. The needs of an increasingly complex pandemic require that managers ensure adequate linkages between individuals and their system of care.[37] Countries need to take ownership of the response to their epidemic if their effort is to be successful and sustainable.[38] Programs should also build evaluation into their structure on the front end, so they can generate evidence of their outcomes to justify their continued funding, ensure effectiveness, and enable future program implementers to learn from their successes and failures.

We cannot close without addressing the question as to the future of WHO. Until recently, most believed that it is the international agency which should lead the global response against infectious diseases that threaten global security, diseases like AIDS, SARS, avian influenza, and Ebola.[39] The failure of WHO to respond adequately to the 2014 Ebola outbreak in West Africa brought about numerous and profound criticisms of the agency that significantly damaged its reputation.[40] Its poor Ebola response severely dented the belief that WHO is competent to deliver results and lead a full emergency public health response.[41] The truth is that, faced with declining contributions to its budget, hampered by an archaic regional structure, and crowded by an ever growing field of global health actors, WHO has struggled greatly for the past two decades—since around the time of the dissolution of GPA—to locate its place in the field of global health governance. It has scrambled to reform itself into a more efficient and focused organization, but the effects of these changes have yet to materialize.[42] It is certainly not the organization with the reputation and prestige that it had when I first joined it in 1978.

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[37] S. M. Bertozzi, T.E. Martz, P. Piot. "The evolving HIV/AIDS response and the urgent tasks ahead." *Health Affairs*. 2009 Nov–Dec;28(6):1578–90.

[38] Michele Sidibe et al., "AIDS governance; best practices for a post-2015 world," *The Lancet*, 2013 381, 2147–2149.

[39] Harvey V. Fineberg, "Pandemic Preparedness and Response—Lessons from the H1N1 Influenza of 2009," *New England Journal of Medicine* 2014; 370:1335–1342, April 3, 2014; Margaret Chan, "WHO Reform: Progress Report on Reform Implementation, Report by the Director-General, Sixty-Seventh World Health Assembly, Provisional Agenda Item 11.1," Geneva: World Health Organization, 8 May, 2014, A67/4 http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_4-en.pdf.

[40] "World Health Organization, Too bit to ail," *The Economist*, Dec 13, 2014; Somini Sengupta "Effort on Ebola Hurt WHO Chief," *the New York Times*, January 6, 2015.

[41] Report of the Ebola Assessment Panel, WHO, July 2015; "Our systems simply couldn't copy," *Lancet* 385: 2447, June 20, 2015; "Solving WHO's "persistent weakness" (part 1)," *Lancet*, 385:100, Jan 10, 2015.

[42] Mark. Dybul et al., Reshaping Global Health, Policy Review, 2012 No. 173, Hoover Institutions, Stanford University; "An irreversible change in global health governance." *Lancet* 385: 2536, May 30, 2015.

The unfortunate reality today is that WHO is not capable of providing the leadership required within the UN system to confront acute epidemic threats. However, as we saw during the Ebola outbreak, it is not evident from where this leadership should come. There have been a number of proposals. Some have called for strengthening WHO country and regional offices and establishing a new and dedicated WHO Center for Emergency Preparedness with an independent Board that publishes an annual report on global health security.[43] An independent panel convened by the Harvard School of Public Health and the London School of Hygiene and Tropical Medicine (LSHTM) recommended the formation of a WHO Standing Emergency Committee. A Commission on a Global Health Risk Framework for the Future convened by the United States National Academy of Medicine advocated for the creation of a WHO Center for Health Emergency Preparedness and Response. Still others have proposed that more leadership in this area be provided by the UN Secretary General's Office in UN headquarters in New York.[44]

Indeed, in May 2016, the World Health Assembly approved the establishment of a new WHO Health Emergencies Program to address a wide range of health emergencies—disease outbreaks, natural disasters, man-made disasters, and conflicts—with an agreed upon budget of $494 million, reflecting an increase of $160 million to WHO's current budget for emergency work. The Program would have a common results framework to standardize planning, budgeting, staffing, monitoring, and feedback across all levels of the organization.[45] An eight-member expert committee has been appointed to oversee and monitor the program. Time will tell whether WHO is able to raise the necessary funds for the program and, if it does, whether the program is sufficient to rectify the problems seen during the Ebola outbreak. To date, WHO's advice on and response to the expanding spread of the Zika virus, while not without controversy, has been viewed positively.

While improving its ability to respond to acute emergencies is no doubt essential, it is even more important to consider how to best restore WHO's overall credibility and address its more than 20-year decline as the world's leader in health.[46] It is because of this decline that WHO has a limited amount of flexible funding. By 2014, 80% of WHO's budget comprised of earmarked funds, which essentially

[43] Report of the Ebola Assessment Panel, WHO, July 2015; Suerie Moon, Devi Sridhar, Muhammad A Pate, Ashish K Jha, Chelsea Clinton, Sophie Delaunay, Valnora Edwin, Mosoka Fallah, David P Fidler, Laurie Garrett, Eric Goosby, Lawrence O Gostin, David L Heymann, Kelley Lee, Gabriel M Leung, J Stephen Morrison, Jorge Saavedra, Marcel Tanner, Jennifer A Leigh, Benjamin Hawkins, Liana R Woskie, Peter Piot, "Will Ebola change the game? Ten essential reforms before the next pandemic. The report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola," *Lancet*, 386:2204–2221, 2015.

[44] Peter Sands, Carmen Mundaca-Shah, and Victor J. Dzau, "The Neglected Dimension of Global Security—A Framework for Countering Infectious-Disease Crises," *New England Journal of Medicine* 2016; 374:1281–1287 March 31, 2016 DOI: 10.1056/NEJMsr1600236.

[45] Reform of WHO's work in health emergency management, WHO Health Emergencies Program, Report by the Director-General, 69th World Health Assembly, Document 169/30, May 2016.

[46] Enhancing the Performance of International Health Institutions", Harvard Center for Population and Development Studies, February 1996.

makes it a donor driven organization, answering to donor agendas and priorities rather than the World Health Assembly[47]. Some have recommended a set of far more extensive reforms within WHO than it has proposed, reforms that would more radically change its governance structure (such as eliminating the regional offices and establishing more authority and budget control centrally), which is at the root of many of its operational problems.[48] Others have suggested the establishment of UN-HEALTH, a multi-stakeholder, governing body to provide global guidance in terms of norms, standards, and policies, and information on health trends and outcomes (similar but wider reaching than UNAIDS). Another proposed option is the formation of a UN Health Commission forum to enhance coordination between major global health agencies including the UN agencies, NGOs, and the private sector.[49] Some have even called for a Bretton Woods type conference to devise a new global health governance structure entirely.[50] Reaching a global consensus on the best way to organize and financially support a response to global threats could be included in any such deliberations.

Our own preference is the first of these options—for WHO to take the bold steps of genuinely reforming itself to be a true and trusted leader in global health and global health security, as agreed at the G7 Summit in Germany in June, 2015.[51] As proposed by the Harvard-LSHTM panel mentioned above, WHO should focus its future activities on its core functions as determined by a fundamental review of its constitution and mandate, develop a sustainable financial model that supports these core functions, and perhaps outsource some of its key activities to other global health organizations.[52] The newly elected Director-General, Tedros Ghebreyesus, will need to exhibit strong leadership, pay special attention to issues around WHO organizational structure, improve its transparency with regards to funding, and carry out the necessary reforms.[53] Our hope is that WHO and its Member States find the courage and political will to make the needed reforms and to do so very soon. If they

[47] Chelsea Clinton and Devi Sridhar. *Governing global health: who runs the world and why?* Oxford Univeristy Press, 2017, p. 185.

[48] "World Health Organization, Heal Thyself," *The Economist*, Dec. 13, 2014; Charles Clift "What's the World Health Organization For?" *Chatham House Report*, May 2014; Suerie Moon, Devi Sridhar, Muhammad A Pate, Ashish K Jha, Chelsea Clinton, Sophie Delaunay, Valnora Edwin, Mosoka Fallah, David P Fidler, Laurie Garrett, Eric Goosby, Lawrence O Gostin, David L Heymann, Kelley Lee, Gabriel M Leung, J Stephen Morrison, Jorge Saavedra, Marcel Tanner, Jennifer A Leigh, Benjamin Hawkins, Liana R Woskie, Peter Piot, "Will Ebola change the game? Ten essential reforms before the next pandemic. The report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola," *Lancet*, 386:2204–2221, 2015.

[49] Marco Schaferhoff, Elina Suzuki, Philip Angelides, Steven Hoffman, "Rethinking the Global Health System, Chatam House," *Royal Institute of International Affairs*, September 2015.

[50] Richard Horton, "Offline: Global Health—an end of term report," *The Lancet* 2912, 379, 1934; K Abbasi, "The World Health Organization: no game of thrones," *BMJ* 2014; 348:g4265.

[51] Schloss Elmau, "Leaders' Declaration G-7 Summit, 7–8 June, 2015, G7 Germany 2015.

[52] J. Negin and R. Dhillon, "Outsourcing: how to reform WHO for the 21st Century." *BMJ Global Health* 2016;1:e000047. doi 10.1136/bmjgh-2016-000047.

[53] Elizabeth Fee. "Whither WHO? Our Global Health Leadership." *American Journal of Public Health*: November 2016, 106(11): 1903–1904. doi: 10.2105/AJPH.2016.303481.

do not, the global health community may require more radical actions, since the world cannot afford to wait any longer for WHO to lead effectively in addressing the many global health challenges before us now and in the future. As an example, the UN has launched an Interagency Coordination Group on Antimicrobial Resistance to coordinate the global response to antimicrobial resistance. While WHO co-chairs the group, it could become another example of WHO losing prime leadership in global health.[54]

Beyond WHO, we believe the history of AIDS and the manner in which the world responded has much to teach 21st century global health planners and policymakers about global health governance. Comprehensive and thoughtful planning can better prepare the global health community to respond to the short- and long-term needs created by such health crises. The risk in pandemics and other emergencies is that, it is only once the situation "is thoroughly out of hand", that we often belatedly respond with remedies, solutions, and interventions which have been garnered from other providers, during other emergencies, at other times. I had the privilege of working alongside many of those in the WHO Global Programme on AIDS—people who, returning to the words of former United States President Barack Obama, "are focused on how they can help people that they've never met; people who define themselves not by what makes them different from other people but by the humanity that we hold in common."[55] We have striven in this book to lift up and affirm the lives and efforts of many who have served during the AIDS pandemic, many whose work has until now not received the attention it deserves, and many more whose names could not be mentioned here because of page limitations. As we learn from their successes and their failures it is our hope that we can magnify their influence to, in some small way, reduce the cost, pain, and suffering that pandemics like AIDS inflict upon humankind.

[54] UN announces interagency group to coordinate global fight against antimicrobial resistance. UN News Centre. March 16, 2017. Available at http://www.un.org/apps/news/story.asp?NewsID=56365#.WPpKd_nyvcv

[55] Barack Obama, "The President Makes a Statement on Ukraine," Whitehouse.gov, July 18, 2014, https://www.whitehouse.gov/photos-and-video/video/2014/07/18/president-makes-statement-ukraine.