

WHO and Its Enduring Commitment to Global Pediatrics

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ABBREVIATIONS Baylor-TCH-CVD, Baylor College of Medicine-Texas Children's Hospital Center for Vaccine Development; DALYs, disability-adjusted life years; EPI, Expanded Program on Immunization; GAVI, Global Alliance of Vaccines and Immunizations; IA2030, Immunization Agenda 2030; LMICs, low- and middle-income countries; NTDs, Neglected Tropical Diseases; TDR, Special Programme for Research and Training in Tropical Diseases; USAID, United States Agency for International Development; USG, United States Government; UW-IHME, University of Washington-Institute for Health Metrics and Evaluation; WHO, World Health Organization

KEYWORDS diarrhea; immunizations; measles; neglected tropical diseases; pediatrics vaccines; pertussis; polio

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Ending a 77-Year American Partnership

Since the World Health Organization (WHO) Constitution came into force in 1948, the United States has been among WHO's most active member states and largest donor. For decades the Centers for Disease Control and Prevention, President's Emergency Plan for AIDS Relief, United States Agency for International Development (USAID), and other United States Government (USG) global health agencies and initiatives have worked hand-in-glove with WHO on projects to address childhood immunization, diarrheal diseases, and the control of neglected diseases. However, such collaborations could end if a January 20, 2025, Trump Administration White House Executive Order announcing its intention "to withdraw from the WHO" goes into effect. The Executive Order would stop both USG funding and ongoing negotiations for any pandemic agreements or treaties.¹ It would also recall USG personnel.

Some US global health experts have noted that actual US withdrawal from WHO requires a 1-year period of notification,^{2,3} in which case there is still the potential for both sides to iron out differences and reverse the Executive Order. Indeed, there are many reasons to maintain our USG association. Top among them is the simple reality that WHO collaborations are essential for receiving early warnings of pandemic threats from abroad, including dangerous outbreaks from filoviruses (e.g., Ebola and Marburg), respiratory viruses (e.g., avian influenza and the next sarbecovirus), and other pathogens emerging on the African continent, Asia, and elsewhere. Our WHO ties also extend American influence on international health regulations and protect the United States from

health subjugation by other potential superpowers, especially China.²

But as a pediatrician-scientist, I am especially concerned that dissolving a decades-long USG-WHO partnership would jeopardize the health and safety of children both globally and in the United States. For reasons outlined below, it is increasingly difficult to separate their kids from ours.

Expanded Program on Immunization and Polio Eradication

Through its intensified smallpox vaccination campaign launched in 1967, WHO administered half a billion smallpox vaccine doses. The last known case of smallpox occurred in Somalia in 1977, and 2 years later the disease—which in the 20th century killed as many as 300 million people—was certified as eradicated.⁴ On the heels of that successful program, in 1974 WHO made the prescient decision to build on the vaccination infrastructure it helped to create and launch the Expanded Program on Immunization (EPI). Initially, EPI vaccinated infants against 6 illnesses—diphtheria, pertussis, tetanus, polio, measles, and tuberculosis (using BCG)—but in time, additional vaccines were added to prevent *Haemophilus influenzae* type B meningitis, pneumococcal disease, rotavirus, hepatitis B, and human papillomavirus-induced cancers.⁴

A recent analysis finds that in the 50 years between 1974 and 2024, EPI made enormous strides in saving pediatric lives. EPI prevented an estimated 146 million deaths of children younger than 5 years, including 101 million infant deaths.⁵ These numbers translated to over 10 billion years of full health gained. In 1988, a

polio eradication initiative was added to EPI, leading to a 99.9% reduction in cases caused by wild-type polio.⁶

To accelerate the pace of childhood immunizations even further, in 1999 WHO entered a partnership with United Nations Children's Fund, World Bank, Gates Foundation, and academic and industry partners to create a Global Alliance for Vaccines and Immunization (GAVI). Together, GAVI and WHO further promote the development of new childhood vaccines such as 2 malaria vaccines that were recently introduced in Africa. Our Baylor College of Medicine-Texas Children's Hospital Center for Vaccine Development (Baylor-TCH-CVD) also develops low-cost vaccines for low- and middle-income countries (LMICs). They include a recombinant protein COVID-19 vaccine technology that reached 75 million adolescent children in India,⁷ and vaccines for parasitic infections.⁸ Most recently, WHO launched an Immunization Agenda 2030 (IA2030) to catch up on childhood immunizations missed because of the social disruptions and diverted resources resulting from the COVID-19 pandemic. Its objective: to achieve 90% coverage for the EPI and GAVI vaccines.⁹

Today, the goals of IA2030 are under threat from a globalizing antivaccine movement that first accelerated in the United States.¹⁰ If IA2030 fails we could reverse past successes in global childhood immunizations to bring back measles, pertussis, and even polio outbreaks. Now that childhood immunization rates have also declined

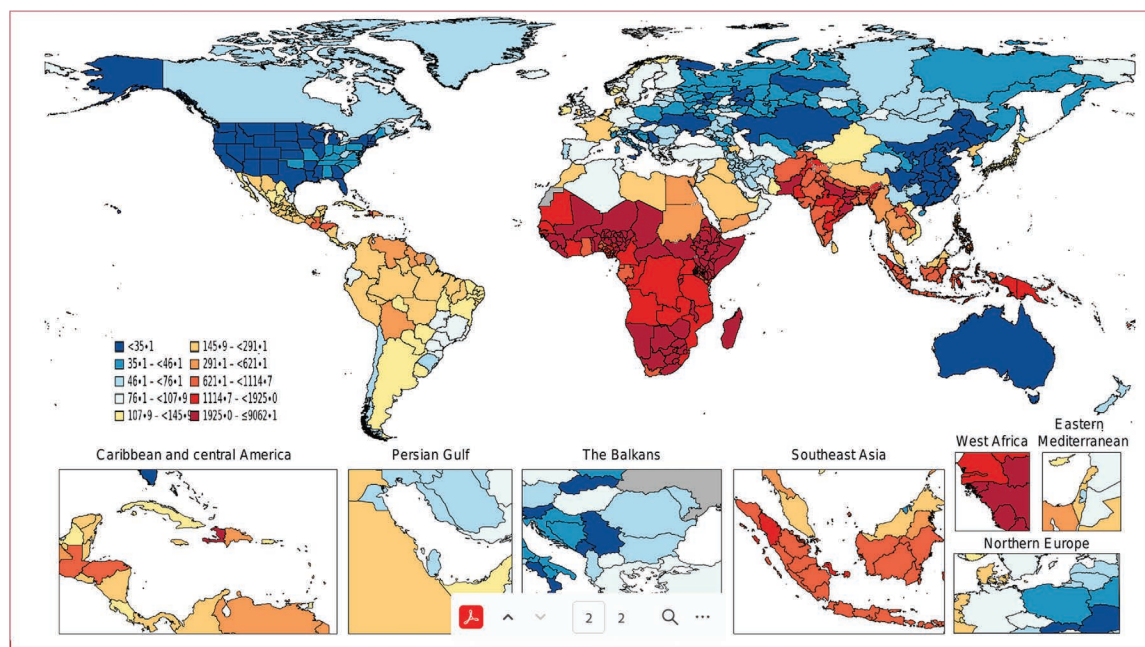
sharply in the United States—just over the past year we have seen a 5- to 6-fold rise in pertussis cases and a 4-fold rise in measles outbreaks¹⁰—we should also expect that global increases in vaccine-preventable illness will spill over to the United States and place American children at risk. That process might already be underway.

Global Diarrheal Disease

Diarrheal disease also remains a leading killer of children. According to the Global Burden of Disease Study 2021 of the University of Washington—Institute for Health Metrics and Evaluation (UW-IHME), almost 1.2 million people, mostly children, die annually from diarrheal illness; in aggregate these conditions result in 59 million ability-adjusted life years (DALYs), placing them near the top of serious pediatric illnesses. The highest disease burden for these conditions remains on the African continent, South and Southeast Asia, with major causes including cholera, enterotoxigenic and enteropathogenic *Escherichia coli*, shigellosis, salmonellosis, rotavirus, and cryptosporidiosis (Figure 1).

As awful as this situation stands today, it would be far worse if it were not for the WHO launching their Global Diarrheal Diseases Program focused on oral rehydration therapy beginning in 1978.⁴ Oral rehydration therapy has saved tens of millions of pediatric lives since then, although this practice remains underused. In a parallel approach, through EPI and GAVI, rotavirus

Figure 1. Age-standardized DALY rates (per 100,000) by location for diarrheal diseases, both sexes combined, 2021. Source: UW-IHME. Accessed January 20, 2025. <https://www.healthdata.org/research-analysis/diseases-injuries-risks/factsheets/2021-diarrheal-diseases-level-3-disease>.



DALY, disability-adjusted life year; UW-IHME, University of Washington—Institute for Health Metrics and Evaluation.

vaccines began to see widespread uptake in these countries, and now several new antibacterial vaccines are in development. These vaccines would also help reduce the future impact of food insecurity due to climate change and global conflict.¹¹ It is critical these global health activities continue.

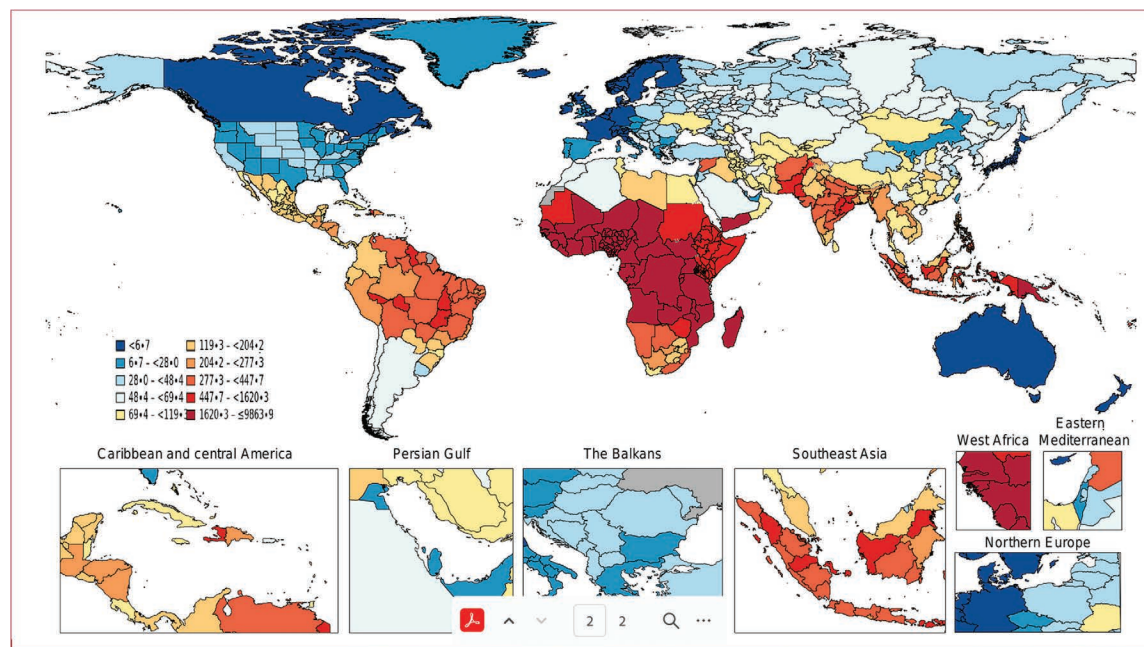
Neglected and Tropical Diseases

One of the lesser known WHO programs for child health has been in tropical infectious diseases, beginning with Special Programme for Research and Training in Tropical Diseases (TDR), which celebrated its 50th anniversary in 2024.¹² TDR's major role is infectious and tropical disease research capacity building in LMICs. Then, beginning in 2006, WHO also formed a new Department of Control of Neglected Tropical Diseases (NTDs). Its origins were led by a group of scientists and public health efforts committed to parasite control through mass drug administration. I was an enthusiastic participant in these efforts, in part because we recognized that many of the essential medicines for parasitic diseases were provided at low cost or free by several of the major pharma companies. Therefore, combinations of drugs including ivermectin for the mass treatment and prevention of lymphatic filariasis (elephantiasis) and onchocerciasis (river blindness); albendazole or mebendazole for soil-transmitted helminth infections;

praziquantel for schistosomiasis; and azithromycin for blinding trachoma (a bacterial infection) could be combined in a package of interventions costing less than US \$1.00.¹³ WHO established implementation algorithms (with disease prevalence maps) for mass drug administration based on data that it was safe to combine these medications.¹⁴ It was subsequently shown that these medications had collateral benefits in terms of reducing additional NTDs such as scabies, and there were even broader reductions in childhood mortality that were not initially envisioned when the program began.¹⁵

Beginning in 2016 more than 1 billion children and adults received annual treatments with 1 or more of those medications, facilitated by both USG and UK Government support, although currently USAID is the largest public donor. As a result, elimination of NTDs such as lymphatic filariasis, onchocerciasis, and trachoma is within reach; elimination for the other conditions may require additional control tools such as new NTD vaccines in development, including several by the Baylor-TCH-CVD.⁸ We still have a long way to go. According to the Global Burden of Disease Study 2021 almost 850,000 people die annually from malaria and NTDs, and these conditions in aggregate result in 72 million DALYs, which like diarrheal illness places these conditions near the top of causes of severe pediatric illness. Like diarrheal illness, the highest malaria and

Figure 2. Malaria and NTDs: Age-standardized DALY rates (per 100,000) by location, both sexes combined, 2021. Source: UW-IHME. Accessed January 20, 2025. <https://www.healthdata.org/research-analysis/diseases-injuries-risks/factsheets/2021-neglected-tropical-diseases-and-malaria>.



DALY, disability-adjusted life year; NTDs, neglected tropical diseases; UW-IHME, University of Washington–Institute for Health Metrics and Evaluation.

NTD disease burden remains on the African continent, South and Southeast Asia, and tropical regions of the Americas (Figure 2).

Reversing the Tide

For decades, the USG-WHO partnership has generated a steady pace of global child health success stories. They include averting more than 150 million deaths from vaccine-preventable diseases, together with almost equally important strides in reducing diarrheal illnesses and NTDs. We must bring these public health victories to the attention of the policymakers, especially those in a position to influence decisions in the White House and the US Congress. Aside from its detrimental impact on children in LMICs, dissolving the USG-WHO collaboration would also adversely affect children living in the United States who are now especially vulnerable to vaccine-preventable diseases because of our declining immunization rates. However, even tropical diseases are now accelerating in the Southern United States from climate change, urbanization, and other 21st century forces.¹⁶ Therefore, maintaining our WHO ties is without question in the enlightened self-interests of all Americans. There is still time to repair a historic break, and it should become our priority.

Article Information

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References

1. White House. Withdrawing the United States from the World Health Organization. Executive Order,

January 20, 2025. Accessed January 20, 2025. <https://www.whitehouse.gov/presidential-actions/2025/01/withdrawing-the-united-states-from-the-worldhealth-organization/>

2. Coniff R, Gostin O. Trump is withdrawing from the WHO: that's a grave mistake. *Washington Post*. January 21, 2025. Accessed January 22, 2025. <https://www.washingtonpost.com/opinions/2025/01/21/who-trump-withdrawal-mistake/>
3. Jha A. The U.S. should reform the WHO, not leave it. *STAT News*. January 18, 2025. Accessed January 20, 2025. <https://www.statnews.com/2025/01/18/world-health-organization-who-reform-leadership-funding-trump-exit/>
4. World Health Organization. Public health milestones through the years. Accessed January 22, 2025. <https://www.who.int/campaigns/75-years-of-improving-public-health/milestones#year-1945>
5. Shattock AJ, Johnson HC, Sim SY, et al. Contribution of vaccination to improved survival and health: modelling 50 years of the Expanded Programme on Immunization. *Lancet*. 2024;403(10441):2307–2316.
6. Bricks LF, Macina D, Vargas-Zambrano JC. Polio epidemiology: strategies and challenges for polio eradication post the COVID-19 pandemic. *Vaccines (Basel)*. 2024;12(12):1323.
7. Hotez PJ, Adhikari R, Chen WH, et al. From concept to delivery: a yeast-expressed recombinant protein-based COVID-19 vaccine technology suitable for global access. *Expert Rev Vaccines*. 2023;22(1):495–500.
8. Hotez PJ, Bottazzi ME, Kaye PM, et al. Neglected tropical disease vaccines: hookworm, leishmaniasis, and schistosomiasis. *Vaccine*. 2023;41(suppl 2):S176–S179.
9. Umbelino-Walker I, Szylovec AP, Dakam BA, et al. Towards a sustainable model for a digital learning network in support of the Immunization Agenda 2030—a mixed methods study with a transdisciplinary component. *PLOS Glob Public Health*. 2024;4(12):e0003855.
10. Hotez P. It won't end with COVID: countering the next phase of American antivaccine activism 2025–29. *PLOS Glob Public Health*. 2025;5(1):e0004020.
11. Hotez PJ. Malnutrition vaccines for an imminent global food catastrophe. *Trends Pharmacol Sci*. 2022;43(12):994–997.
12. Reeder J, Aslanyan G, Kitamura M. TDR at 50: advancing a longstanding commitment to inclusion. *BMJ*. 2024;385:q1149.
13. Molyneux DH, Hotez PJ, Fenwick A. “Rapid-impact interventions”: how a policy of integrated control for Africa's neglected tropical diseases could benefit the poor. *PLoS Med*. 2005;2(11):e336.
14. Hotez PJ, Molyneux DH, Fenwick A, et al. Control of neglected tropical diseases. *N Engl J Med*. 2007;357(10):1018–1027.
15. Hotez PJ, Fenwick A, Molyneux DH. Collateral benefits of preventive chemotherapy—expanding the war on neglected tropical diseases. *N Engl J Med*. 2019;380(25):2389–2391.
16. Hotez PJ. Vaccines in a time of global boiling and megacities. *Trends Parasitol*. 2025:S1471-4922(25)00001-7.