

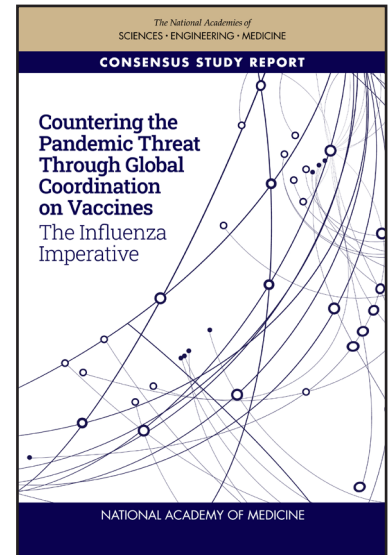


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Countering the Pandemic Threat Through Global Coordination on Vaccines: The Influenza Imperative

Influenza pandemics are a serious threat, though their significance is often minimized. The respiratory mode of transmission and short incubation period of influenza viruses allow them to spread rapidly and can cause high rates of illness and death. Although a substantial framework of organizations, standards, and practices for governance of both pandemic and seasonal influenza exists, this framework has major gaps and does not cover other pandemic viruses. COVID-19 has further laid bare the “fragility of our global system of preparedness and response to pandemics, and the fragmentation of our research and development ecosystem.” It also provides a disruptive moment for improving global pandemic preparedness and response (PPR), including advancing new norms and frameworks for influenza.

An ad hoc committee of experts—convened under the auspices of the National Academy of Medicine and the National Academies of Sciences, Engineering, and Medicine—was tasked with examining lessons learned from COVID-19 and other major viral epidemics to identify ways to strengthen pandemic and seasonal influenza global coordination, partnerships, and financing for vaccines. The committee draws seven overarching recommendations for how the urgent influenza threat—the “influenza imperative”—should be conceptualized and prioritized as a crucial component of future PPR. Given the many organizations with mandates for influenza and an evolving PPR landscape during 2021, many recommendations are targeted at the G7’s and the G20’s proposed PPR structures. The committee acknowledges that many other multilateral, bilateral, and civil society actors beyond the G7 and the G20 are vital for the implementation of these recommendations.



KEY FINDINGS AND RECOMMENDATIONS

Governance and Coordination: Aligned Pandemic Preparedness and Response for Respiratory Pathogens with Pandemic Potential

There is a pressing need to integrate actions to strengthen preparedness for pandemic influenza with interventions to improve preparedness for other pathogens, particularly other respiratory viruses. Without undermining what is already in place, there is a need to move away from disease-specific, siloed systems toward developing an integrated governance, financing, technical, and operational architecture capable of addressing all respiratory virus pandemic threats.

Recommendation:

- The World Health Organization (WHO) should develop an integrated agenda to strengthen preparedness and response for all respiratory pathogens of pandemic potential that encompasses surveillance, information sharing, and the development, manufacturing, and deployment of vaccines, other essential components of the vaccine manufacturing supply chain, and other nonvaccine medical countermeasures.

Surveillance: Stable Financing for Integrated, Modern, Timely Respiratory Virus Surveillance for Pathogens with Pandemic Potential

Without stable financing of a modern, integrated surveillance system for respiratory pathogens with pandemic potential, the global health community will continue to fight pandemics in the dark. Surveillance is primarily a global and national risk assessment and mitigation issue, and each country's surveillance system generates significant positive externalities for other countries. Strengthening and expanding global influenza surveillance to support a broader approach to respiratory virus surveillance will require substantially greater and sustained multilateral investments in country, regional, and global surveillance.

Recommendation:

- With urgency (over the next 3–5 years), the G7 and the G20 should ensure that increased investments are made in surveillance systems that support and encompass every country and region.

Pathogen Sharing: Limitations and Potential of the Pandemic Influenza Preparedness (PIP) Framework and the Nagoya Protocol

The timely sharing of influenza viruses is essential for developing seasonal influenza vaccines, identifying antiviral drug resistance and potential pandemic virus strains, and providing early warning for outbreaks. Delays in sharing genetic sequence data are currently possible due to uncertainties about whether such data fall under the PIP Framework and the Nagoya Protocol. A new global pandemic treaty or international instrument would provide an opportunity to incorporate diplomatic gains from earlier PIP Framework negotiations as foundational elements for access and benefit sharing for other pathogens. This could eliminate the challenge of sharing of viruses and benefits in the midst of a pandemic.

Recommendation:

- The World Health Assembly (WHA) should explicitly clarify that the PIP Framework covers genetic sequence data. WHA should use established PIP Framework principles as a foundation for future WHO member state agreements or advocate for their use in agreements negotiated by other international organizations to cover a broader range of pathogens and their genetic sequence data.

Public–Private Partnerships to Accelerate Vaccine Development: Structuring Global Partnerships to Support Research and Development (R&D) for Influenza Platform Technologies

Platform technologies could revolutionize the effectiveness, speed, and ability to scale up the production of influenza vaccines and overcome intrinsic constraints of the current egg-dominated vaccine production method. Innovation is needed to shorten manufacturing timelines, increase global manufacturing capacity, and improve the effectiveness of influenza vaccines. There are several existing organizations that may be able to lead large-scale R&D and clinical trials for influenza platform technologies if they are given expanded mandates that are matched with appropriate funding and if they can identify stable markets for the products they produce.

Recommendation:

- The Global Health Threats Board or a similar governance structure created by the G7/G20 PPR agenda should negotiate to extend the mandates of the Coalition for Epidemic Preparedness Innovations (CEPI), the Biomedical

Advanced Research and Development Authority, the HERA Incubator, or equivalents elsewhere, as appropriate, to support government–industry partnerships for R&D for influenza and other respiratory viruses with pandemic potential.

An Influenza Vaccine “Moonshot”: Financing and Organizing for Transformational Universal Vaccine R&D, Licensure, and Procurement

A universal influenza vaccine would be a complete game changer for both pandemic preparedness and seasonal influenza vaccine markets. However, the successful development of a universal influenza vaccine will require galvanizing intense and sustained efforts among multiple partners toward a hugely ambitious goal (“moonshot”). Substantive new sources of funding are needed to attract an infusion of new actors and disciplines to improve vaccine technologies. Partnerships that involve governments and private, philanthropic, and civil society organizations, such as CEPI, could lead or coordinate the push for a universal influenza vaccine with the appropriate mandate and adequate funding to create push mechanisms and foster pre-competitive scientific research.

Recommendation:

- The Global Health Threats Board or a similar governance structure created by the G7/G20 PPR agenda, working with other relevant organizations, should initiate a dedicated “moonshot” program to incentivize the development, licensure, and eventual procurement of a universal influenza vaccine candidate as a matter of priority. This program’s structure and funding should include (1) a “push” element for universal influenza vaccine R&D, and (2) a complementary “pull” element to ensure procurement of the resultant universal influenza vaccine, with technical leadership from the Global Alliance for Vaccines and Immunizations (Gavi) and the United Nations Children’s Fund (UNICEF).

Manufacturing Scale Up and Supporting Geographically Distributed Hubs for Influenza Vaccine Manufacturing and Supply Chain Capacity

Recommendation:

- Regional or “geographically distributed” manufacturing hubs offer promise in helping counter vaccine nationalism and promote equitable access through self-sufficiency. However, distributing manufacturing is not the full solution for addressing vaccine equity, and should be balanced by increasing the scale of global vaccine production capacity. No global institutional architecture currently exists to handle manufacturing coordination and market-based issues. The Global Health Threats Board or a similar governance structure created by the G7/G20 PPR agenda should initiate a long-term (10–20 years) multilateral partnership to track emerging technologies that may be targets for technology transfer for influenza vaccines, promote partnerships with regional hubs, and provide technical training.

Last Mile to the Goal of Vaccination: Generating Influenza Vaccine Demand Through Globally Coordinated Deployment Activities

Many countries, particularly low- and middle-income countries, lack adult vaccination plans, systems, and experience. Even in countries such as the United States, COVID-19 has demonstrated how vaccine availability and success at achieving high vaccination rates are different issues and that both present serious challenges. Countries need to build and sustain vaccine deployment capability, especially for adolescents and adults. Deployment activities require proper technical guidance, operational plans and capacity, and designated financial resources for vaccination operations to proceed effectively.

Recommendation:

- UNICEF, Gavi, and relevant national and regional organizations should have funding explicitly allocated for introducing and deploying next-generation seasonal influenza vaccines to underpin scaled-up manufacturing capacity. WHO regional offices should urgently work with countries to do more extensive assessments of their readiness to reach relevant populations.

This is one of four studies conducted under the [Advancing Pandemic and Seasonal Influenza Vaccine Preparedness and Response Initiative](#), which explores how the scientific and technological breakthroughs throughout the COVID-19 pandemic could inform and advance future pandemic and seasonal influenza vaccine preparedness and response efforts.

Committee on Global Coordination, Partnerships, and Financing Recommendations for Advancing Pandemic and Seasonal Influenza Vaccine Preparedness and Response

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