Financing of international collective action for epidemic and pandemic preparedness

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The global pandemic response has typically followed cycles of panic followed by neglect. We are now, once again, in a phase of neglect, leaving the world highly vulnerable to massive loss of life and economic shocks from natural or human-made epidemics and pandemics. Quantifying the size of the losses caused by large-scale outbreaks is challenging because the epidemiological and economic research in this field is still at an early stage. Research on the 1918 influenza H1N1 pandemic and recent epidemics and pandemics has shown a range of estimated losses (panel).[1–7]

A limitation in assessing the economic costs of outbreaks is that they only capture the impact on income. Fan and colleagues[8] recently addressed this limitation by estimating the "inclusive" cost of pandemics: the sum of the cost in lost income and a dollar valuation of the cost of early death. They found that for Ebola and severe acute respiratory syndrome (SARS), the true ("inclusive") costs are two to three times the income loss. For extremely serious pandemics such as that of influenza in 1918, the inclusive costs are over five times income loss. The inclusive costs of the next severe influenza pandemic could be US$570 billion each year or 0·7% of global income (range 0·4–1·0%)[8]—an economic threat similar to that of global warming, which is expected to cost 0·2–2·0% of global income annually. Given the magnitude of the threat, we call for scaled-up financing of international collective action for epidemic and pandemic preparedness.

Two planks of preparedness must be strengthened. The first is public health capacity—including human and animal disease surveillance—as a first line of defence.[9] Animal surveillance is important since most emerging infectious diseases with outbreak potential originate in animals. Rigorous external assessment of national capabilities is critical; WHO developed the Joint External Evaluation (JEE) tool specifically for this purpose.[10] Financing for this first plank will largely be through domestic resources, but supplementary donor financing to low-income, high-risk countries is also needed.

The second plank is financing global efforts to accelerate research and development (R&D) of vaccines, drugs, and diagnostics for outbreak control, and to strengthen the global and regional outbreak preparedness and response system. These two international collective action activities are underfunded.[11]

Medical countermeasures against many emerging infectious diseases are currently missing. We need greater investment in development of vaccines, therapeutics, and diagnostics to prevent potential outbreaks from becoming humanitarian crises. The new Coalition for Epidemic Preparedness Innovations (CEPI), which aims to mobilise $1 billion over 5 years, is developing vaccines against known emerging infectious diseases as well as platforms for rapid development of vaccines against outbreaks of unknown origin. The WHO R&D Blueprint for Action to Prevent Epidemics[12] is a new mechanism for coordinating and prioritising the development of drugs and diagnostics for emerging infectious diseases. Consolidating and enhancing donor support for these new initiatives would be an efficient way to channel resources aimed at improving global outbreak preparedness and response.

Crucial components of the global and regional system for outbreak control include surge capacity (eg, the ability to urgently deploy human resources); providing technical guidance to countries in the event of an outbreak; and establishing a coordinated, interlinked global, regional, and national surveillance system. These activities are the remit of several essential WHO financing envelopes that

For the **Coalition for Epidemic Preparedness Innovations** see http://cepi.net

***Panel:* Health and economic impacts of epidemics and pandemics**

H1N1 influenza (1918)

- 50 million deaths;[1] gross domestic product (GDP) loss of 3% in Australia, 15% in Canada, 17% in the UK, and 11% in the USA[2]

Severe acute respiratory syndrome (SARS) (2003)

- 774 deaths;[3] global economic loss of US$52·2 billion[4]

Ebola (2013)

- 10 600 deaths and a GDP loss of US$2·8 billion across Guinea, Liberia, and Sierra Leone[5]

Zika (2015–16)

- 20 deaths[6] and an expected loss of US$3·5 billion in the Latin American and Caribbean region[7]

all face major funding shortfalls. The Contingency Fund for Emergencies finances surge outbreak response for up to 3 months. The fund has a capitalisation target of $100 million of flexible voluntary contributions, which needs to be replenished with about $25–50 million annually, depending on the extent of the outbreak in any given year. However, as of April 30, 2017, only $37·65 million had been contributed, with an additional $4 million in pledges.[13] The WHO Health Emergencies and Health Systems Preparedness Programmes face an annual shortfall of $225 million in funding their epidemic and pandemic prevention and control activities.[14]

Previous health emergencies have shown that it can take time to organise global collective action and provide financing to the national and local level. In such situations, a global mechanism should offer a rapid injection of liquidity to affected countries. The World Bank's Pandemic Emergency Financing Facility (PEF) is a proposed global insurance mechanism for pandemic emergencies.[15] It aims to provide surge funding for response efforts to help respond to rare, high-burden disease outbreaks, preventing them from becoming more deadly and costly pandemics. The PEF currently proposes a coverage of $500 million for the insurance window; increasing the current coverage will require additional donor commitments. In addition, the PEF has a $50–100 million replenishable cash window.

As the world's health ministers meet this month for the World Health Assembly, we propose five key ways to help prevent mortality and economic shocks from disease outbreaks. First, to accelerate development of new technologies to control outbreaks, donors should expand their financing for CEPI and support the WHO R&D Blueprint for Action to Prevent Epidemics. Second, funding gaps in the WHO Contingency Fund for Emergencies and the WHO Health Emergencies Programme should be urgently filled and the PEF should be fully financed. Third, all nations should support their own and other countries' national preparedness efforts, including committing to the JEE process. Fourth, we believe it would be valuable to create and maintain a regional and country-level pandemic risk and preparedness index. This index could potentially be used as a way to review preparedness in International Monetary Fund article IV consultations (regular country reports by staff to its Board). Finally, we call for a new global effort to develop long-term national, regional, and global investment plans to create a world secure from the threat of devastation from outbreaks.

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