



Seasonal and pandemic influenza: global fatigue versus global preparedness

WHO estimates that almost ten billion doses of influenza vaccine would be needed in order to protect everyone in the world against the seasonal flu or a future influenza pandemic. To reach this goal, WHO instituted the 10-year Global Action Plan for Influenza Vaccines (GAP) in 2006, aiming to decrease the global shortage of flu vaccines, increase seasonal vaccinations, and encourage vaccine research and development. As a result, in April, 2017, a GAP summary report to the WHO Director-General estimated that the maximum production capacity for influenza vaccine had increased from 1.5 billion doses in 2006 to 6.4 billion doses by the beginning of 2017 (assuming production facilities operate at full capacity, sufficient eggs are obtainable, and dose-decreasing technology is employed). Although not entirely sufficient, current production capacity would allow a significant proportion of the population of all countries to be vaccinated annually.

Vaccine uptake, however, is currently lagging far behind production capacity. A survey of the global distribution of seasonal influenza vaccine was reported by the International Federation of Pharmaceutical Manufacturers and Associations, whose 16 members provide the vast majority of doses. The survey indicated that the approximate number of vaccine doses distributed to 201 countries worldwide had increased from 262 million in 2004 to 486 million in 2015. 95% of the doses distributed in 2015, were shared among the Americas, Europe, and western Pacific WHO regions, whereas 5% were distributed among southeast Asia, eastern Mediterranean, and Africa WHO regions (the latter group comprising 48.5% of the population surveyed). No consistent correlation was found in 2015 between the gross national income per capita of a country and its dose distribution per 1000 inhabitants; Europe was the only region in which the share of distributed vaccine doses decreased during this time period (from 34% in 2004 to 22% in 2015). Notably, of the eight countries with distribution rates of more than 300 doses per 1000 inhabitants (USA, Canada, UK, Israel, Japan, South Korea, Chile, and Australia), all had established influenza vaccination strategies that were politically supported and included measures for directly connecting with patients, (eg, reimbursement and communication processes).

"Influenza causes a huge preventable disease burden every year in all countries", commented lead author Abraham Palache (FluPal Consultancy BV, Amsterdam, The Netherlands). He added, "Immunisation with currently available safe and beneficial vaccines can reduce a considerable fraction of the annual influenza-associated disease and mortality burden. Immunisation recommendations by WHO and National Health Authorities for annual vaccination for

patients at risk are poorly implemented in many countries. Therefore, many patients suffer from preventable influenza-associated disease, including exacerbation of underlying noncommunicable diseases."

Kathryn Edwards from the Vanderbilt Vaccine Research Program (Vanderbilt University School of Medicine, Nashville, TN, USA) said of the survey, "These data suggest that we're not reaching the influenza vaccine targets proposed by the WHO. Why are the poorest countries not putting their vaccination money into influenza vaccines? To have granular data from each country and the impact of influenza in each country would be helpful to convince policy makers of the importance of influenza. Deficiencies exist in knowing the burden of the disease and its impact in every country."

Global influenza fatigue is the term used in WHO's GAP summary report to describe the current decrease of interest in vaccination policymaking and vaccine uptake, which, in turn, impede preparedness for seasonal and pandemic influenza. Admittedly, developing seasonal influenza vaccination strategies across all countries is a complex process. A Global Influenza Initiative roundtable meeting that focused on the challenges of establishing vaccination policies and programmes in the southeast Asia and western Pacific WHO regions identified obstacles specific to those regions, including intraregional variations in climate. Peak influenza activity varied according to the temperate, tropical, or subtropical climate of a country, with some countries having multiple climate zones and some tropical and subtropical areas having influenza year-round. Thus, vaccination programmes developed in the Asia Pacific region would probably need to be country-specific and might include optimisations such as altering the timing of annual vaccinations or considering half-yearly vaccination against currently circulating influenza strains. Additionally, some of the obstacles faced by these WHO regions were similar to those encountered by other regions. Lead author of the review of the Global Influenza Initiative meeting, Benjamin Cowling (The University of Hong Kong, Hong Kong, China) said, "We found considerable evidence of disease burden comparable to other countries in the rest of the world. However, data on disease burden are lacking in some of the lower income areas in the Asia Pacific region, as are surveillance data to indicate the timing and duration of annual influenza epidemics. We found that influenza vaccines are generally underutilised, and increased use of influenza vaccines would likely benefit public health in many locations in the Asia Pacific region."

"Proper seasonal influenza control as recommended by WHO and National Health Authorities is a prerequisite for pandemic preparedness", summarised Palache. At WHO's



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[http://dx.doi.org/10.1016/S2213-2600\(17\)30466-6](http://dx.doi.org/10.1016/S2213-2600(17)30466-6)

For more on the **GAP influenza plan** see http://www.who.int/influenza_vaccines_plan/en/

For the **2017 GAP summary report** see http://www.who.int/entity/influenza/GAP_AG_report_to_WHO_DG.pdf?ua=1

For the **IFPMA report** see [Vaccine 2017; 35:4681-6](http://www.who.int/entity/influenza/GAP_AG_report_to_WHO_DG.pdf?ua=1)

For the **review of the Global Influenza Initiative meeting** see [Vaccine 2017; 35:856-64](http://www.who.int/entity/influenza/GAP_AG_report_to_WHO_DG.pdf?ua=1)

For more on the WHO response to the 2009 pandemic see [N Engl J Med 2014; 370:1335-1342](#)

behest, an international committee reviewed the response of WHO to the 2009 influenza A(H1N1)pdm09 pandemic and concluded that the greatest operational shortcomings had been insufficient vaccine production and untimely vaccine distribution. Although some progress has been made since 2009, continuing efforts to increase seasonal

influenza vaccine production and strengthening efforts to establish national vaccination policies and programmes could benefit global health on an annual basis as well as in the event of a future influenza pandemic.

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