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Mandatory polio vaccination for travellers: protecting global public health

The goal of following smallpox eradication with another programme to eliminate a disease from the planet was too compelling to resist and, in 1988, the World Health Assembly set its sights on polio.¹ 26 years later, the dream is not yet a reality. On May 5, 2014, WHO issued strong recommendations that Pakistan, Syria, and Cameroon should ensure that their residents and long-term visitors have up-to-date vaccination against polio before they travel internationally, and that each individual is issued with an International Certificate of Vaccination or Prophylaxis as proof of this.² The recommendations advise that residents and long-term visitors receive one dose of oral polio vaccine or inactivated poliovirus vaccine between 4 weeks and 12 months before international travel, and that those who are undertaking urgent travel have one dose of polio vaccine at least by the time of departure. These new recommendations from WHO are important and long overdue. They may not be the last intervention of this kind, since WHO plans to reassess the situation in 3 months. The recommendations are associated with a declaration from WHO that the international spread of wild poliovirus in 2014 is a public health emergency of international concern.²

In 2014, just three countries still have endemic polio infection: Afghanistan, Nigeria, and Pakistan.³ Until they are rid of poliovirus, no other country is wholly safe from polio and the goal of global eradication remains elusive. Since 2011, 770 people (mainly young children) in these countries have been paralysed by polio. Nigeria and Pakistan have also exported wild poliovirus to no fewer than 20 other countries, affecting a further 470 people.^{4,5}

The Global Polio Eradication Initiative works to reduce the number of countries with endemic polio circulation, but constantly faces the challenge of countries previously cleared of polio becoming reinfected.³ Recent international spread of wild poliovirus has created particularly complex outbreaks of polio (figure). In 2013, wild poliovirus from Nigeria took hold in Somalia,⁶ in an area where al-Shabab commanders do not allow vaccination. In the same year, wild poliovirus spread from Pakistan to Syria, where it caused a substantial outbreak in the midst of civil war.⁷

There is clear value in vaccinating international travellers who come from areas with active polio infection against poliovirus. Children are especially vulnerable to poliovirus, and this measure will help to protect them. Responding to outbreaks of poliovirus outside of the three endemic countries is distracting, expensive, and, particularly in countries such as Syria and Somalia, immensely difficult. Minimising international spread of poliovirus also benefits the endemic countries, reducing the possibility of a scenario in which Nigeria or Pakistan finally succeeds in stopping endemic polio transmission only to be reinfected by a virus that it had previously exported.

WHO's latest recommendations were made possible by the International Health Regulations. Strengthened in 2007, these enable WHO's Director-General to convene an emergency committee in response to an event that may constitute a public health emergency of international concern.⁸ Until now, the Director-General had done so for two disease outbreaks: for the influenza A H1N1 pandemic in 2009 and for Middle East respiratory syndrome coronavirus (MERS-CoV) in 2013.^{9,10} In January, 2014, WHO's Director-General Margaret Chan decided to

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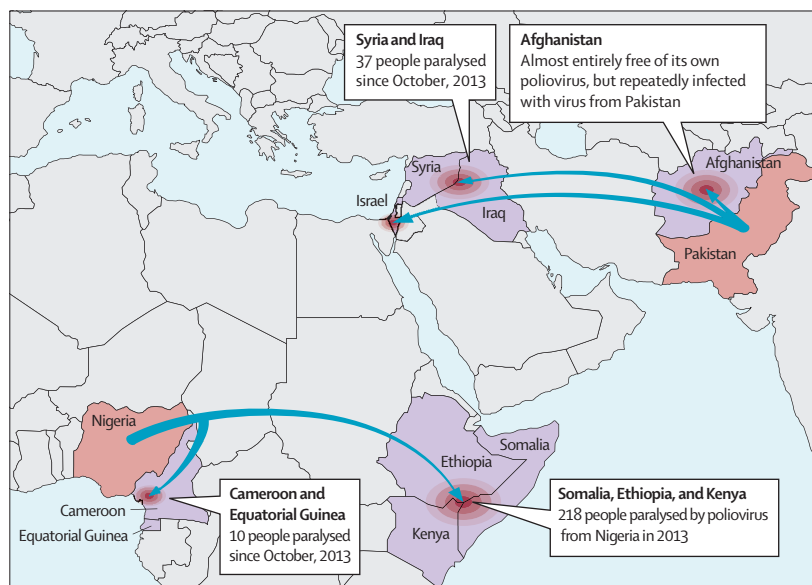


Figure: International spread of wild poliovirus since start of 2013
Numbers are from the Independent Monitoring Board of the Global Polio Eradication Initiative, based on data from WHO.⁵

convene a further committee to examine polio, after recommendations from the Independent Monitoring Board of the Global Polio Eradication Initiative.^{3,11} WHO's recommendations on May 5 were based on the emergency committee's advice.

WHO's recommendations are just that—recommendations. It is up to Pakistan, Cameroon, and Syria to enact them. Recommendations by WHO have long been in place to advise travellers on what vaccination to have against polio.¹² The difference now is that Pakistan, Cameroon, and Syria will (assuming they act on WHO's recommendations) ensure that travellers have complied with this advice before they are allowed to travel.

WHO's primary recommendations relate to Pakistan, Cameroon, and Syria because these are the three countries from which the expert committee considered the risk of international spread of poliovirus in 2014 to be greatest.² In its full recommendations WHO asks the other currently infected countries, including Nigeria and Afghanistan, to "encourage" vaccination before travel (rather than "ensure" it).² These countries have escaped restrictions at this time, because they have not recently exported poliovirus.² Although this is the stated rationale, the committee would have had difficulty appearing to stigmatise countries whose number of polio cases has declined substantially, as has been the case in Nigeria and Afghanistan. However, if they—or any other country—does export poliovirus, WHO's primary recommendation for mandatory polio vaccination will also come into force for them.² This is of great relevance to Nigeria, from where poliovirus has historically caused many outbreaks in other African countries.¹¹

After the World Health Assembly resolution in 1988, initial progress towards polio eradication was good: by 2002, polio had been eliminated from 118 countries, leaving just seven.¹³ In 1988, there were 350 000 cases of polio in these countries. By the year 2000, this had fallen to below 2000 cases, a reduction of more than 99%.¹⁴ But after these initial years of progress, the Global Polio Eradication Initiative has spent 13 years trying to deal with the "last 1%".¹⁵ The programme has to work in geographical areas and confront problems that would be deemed simply too difficult or dangerous by most public health programmes. The fact that more than 20 frontline workers associated with the polio programme have died since December, 2012, is a tragic reminder of these difficulties.³

In disease control terms, the idea of requiring vaccination before travel from infected countries is surely an obvious one. It could usefully have been implemented many years ago. There are obvious political and financial ramifications for the governments affected: no country wants to be regarded as a hazard to the world. This was evident with the 2009 influenza A H1N1 pandemic; in the past, the place of origin was applied to the name of a new virus but although the early cases occurred in Mexico, the first influenza pandemic of the 21st century was officially simply called A(H1N1)pdm(09).¹⁶ WHO's latest recommendation on mandatory polio vaccination is a victory for sensible disease control over excessive political sensitivity. Diplomacy and bureaucracy are major forces in global health; essential in many ways, they also create an inertia that is at odds with ambitious goals like global polio eradication.

Bold global health goals inspire, motivate, and galvanise action. It is right that humankind should eradicate diseases; that the benefits of vaccination, clean water and air, and eventually universal health care, should be felt worldwide. Bold goals demand bold action. WHO's new recommendation on polio should not be controversial; nor should it be seen as some political sanction. When a disease control imperative risks bruising national pride, the former must win out.

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We declare that we have no competing interests.

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Beyond expectations: 40 years of EPI

The Expanded Programme on Immunization (EPI) was established by the World Health Assembly in 1974 at a time of great optimism for public health. The imminent certification for the eradication of smallpox was taken as proof of the power of vaccines, delivered in well-managed programmes, to permanently improve the world.¹

When EPI was established, only about 5% of the world's children were protected from six diseases (polio, diphtheria, tuberculosis, pertussis, measles, and tetanus) targeted by four vaccines. Today, that figure is 83%, with some low-income countries reaching 99% immunisation coverage.² The number of public health vaccines being used for universal protection has more than doubled since 1974. Almost all countries include vaccines against hepatitis B and *Haemophilus influenzae* type b in addition to the original six diseases, and quality-assured vaccines are used in 97% of all countries.³ Today, WHO estimates that immunisation programmes save the lives of 2.5 million people each year and protect many millions more from illness and disability.⁴ With the certification of WHO's South-East Asia Region as polio-free, 80% of the world's population now lives in a country where polio has been eradicated.⁵

What accounts for this success? Does EPI offer lessons of broader relevance as the world prepares for the post-2015 era? EPI had some advantages from the outset. The prevention of childhood deaths has great public and political appeal, and that helped create momentum within individual countries and the international community to support immunisation programmes. Vaccines are scheduled interventions that can be delivered even in the absence of well functioning health systems, and even in places where capacities are weak and skilled health workers are scarce. The costs of the initial six EPI antigens against polio, diphtheria, tuberculosis, pertussis, measles, and tetanus were low.

But EPI's success must be attributed to more than these advantages. During the past four decades, EPI has encouraged new models of international cooperation, found new sources of funding, and stimulated innovation in technology and the operational performance of national immunisation programmes.³ EPI has also pioneered improvements in surveillance and monitoring as a contribution to accountability for results.³ Fundamental public health capacities have also been strengthened; as just one example, there are nearly 700 laboratories, in 164 countries, accredited by WHO to undertake laboratory-based surveillance for measles and other vaccine-preventable epidemic-prone diseases.⁶

The establishment of the GAVI Alliance in 2000 helped launch the most innovative EPI decade to date.⁷ Since the start of this century, WHO, UNICEF, and the GAVI Alliance have worked to change the dynamics of the market for public health vaccines, making supplies more plentiful, predictable, and affordable.⁸

