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Importation of Poliomyelitis by Travelers

To the Editor: In July 2007, an Australian traveler imported polio from Pakistan to Australia (1). He was a 22-year-old man who had immigrated to Australia and had traveled to his country of origin (Pakistan) to visit friends and relatives. Pakistan is one of 4 countries (Afghanistan, India, Nigeria, Pakistan) where polio is still endemic. A diagnosis of polio was made shortly after his return to Australia. Australia was certified as polio-free in 2000. Australia will not be the last industrialized country affected by importation of polio. All countries are at risk until polio has been completely eradicated.

Between 2003 and 2006, polio was imported by travelers (e.g., refugees, pilgrims, traders) to 24 polio-free countries (2). The origin of these importations was largely the 4 countries where polio transmission was never completely interrupted. The importations resulted in about 1,400 secondary cases (2). The resurgence of polio

by international spread was a setback to the Global Polio Eradication Initiative that had successfully decreased the number of polio-affected countries to only 9 in 2002.

The revised International Health Regulations, IHR (2005) (3), entered into legal force on June 15, 2007. These regulations provide the legal framework for coordination of the international effort to reduce or prevent international spread of diseases of public health concern. IHR (2005) (2) lists polio as one of the diseases of public health emergencies of international concern. Preventing importation of polio into polio-free countries is therefore a test case for the revised International Health Regulations (4). Compared to the previous IHR (1969), IHR (2005) has moved away from the definition of fixed maximum measures relating to specific diseases and instead focuses on the issuance of context-specific recommendations, made either on a temporary emergency basis (a temporary recommendation) or routinely for established ongoing risks of disease spread (a standing recommendation).

One strategy to protect polio-free countries from reintroduction of wild poliovirus is by requiring proof of polio vaccination for all incoming travelers from polio-endemic countries. This was proposed by the Advisory Committee on Poliomyelitis Eradication in October 2006. The rationale is similar to that used for yellow fever, currently the only disease for which proof of vaccination may be required for travelers as a condition of entry to a country. The proposal of the Advisory Committee of Poliomyelitis Eradication was discussed at the World Health Assembly in May 2007 (5). Although the main strategy for polio eradication continues to be attaining high vaccination coverage against polio in all countries, the 193 member states have also adopted the resolution to “continue to examine and disseminate measures that member states can

take for reducing the risk and consequences of international spread of polioviruses, including, if and when needed, the consideration of Temporary or Standing Recommendations, under the International Health Regulations (2005)” (3).

The recent polio importation by an inadequately vaccinated traveler would add impetus to such considerations. However, this case also shows that focusing on travelers from polio-endemic countries alone may not be sufficient. Immigrants from developing countries to industrialized countries who subsequently return to their home countries to visit friends and relatives may also be at increased risk if traveling to polio-endemic countries, in particular as many may not have received adequate childhood vaccination including vaccination against polio (6). Targeting those visiting friends and relatives is therefore a potential additional strategy to reduce the risk for the worldwide spread of polio.

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In Response: After poliomyelitis was imported into Australia, Wilder-Smith and colleagues (1) call for proof of vaccination for travelers from polio-endemic countries. Although superficially attractive, their recommendation won't be extremely effective, will be burdensome for polio-endemic and polio-free countries, and is unnecessary.

Documenting vaccination may slightly reduce, but will not eliminate, importations. Vaccination simply does not provide high-level protection against poliovirus infection. Children recently vaccinated with either oral poliomyelitis virus (OPV) or inactivated poliomyelitis virus (IPV) shed poliovirus following a challenge OPV dose (2). Because secretory immunity

falls rapidly, a high percentage of persons vaccinated years or even decades ago will become transiently infected when exposed to poliovirus and will excrete virus for weeks. Lower vaccine efficacy in developing countries (3) further compounds the issue.

Screening programs are likely to be costly and will not be simple to implement. Unanswered questions include the following: Is a single dose of IPV or OPV immediately before departure adequate? Are boosters needed? Why not include countries with imported wild or vaccine-derived poliovirus (VDPV) outbreaks? Can polio-free areas of polio-endemic countries (e.g., Kerala) be exempted? Must records be certified? Can fraudulent vaccinations be detected or prevented?

Data on importations clarifies any need for requiring vaccination of travelers entering polio-free countries. Polioviruses are imported regularly, yet outbreaks are rare. The Australian case comprised 1 imported case. Similarly, no paralytic cases followed the recent importation of a poliovirus from Chad into Switzerland (4) or the 2005 Minnesota VDPV infections (5). The United Kingdom has been polio-free for decades despite close ties with India, Pakistan, and Nigeria. Polio outbreaks (both wild and VDPV) occur where immunization coverage is low. The last major outbreak in Western Europe occurred in a Dutch religious group that refuses immunization. The 2005–06 global outbreak affected polio-free countries where polio immunization coverage had fallen after transmission was interrupted.

Countries at risk for polio importation because of low vaccination coverage should focus on improving their immunization programs, not vaccinating and screening travelers. Australia and other polio-free countries can best protect themselves against importations by supporting eradication efforts in polio-endemic countries.

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