Editorials

Polio eradication: finishing the job and protecting the investment

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The articles in this theme issue of the *Bulletin* address the complex policies of polio eradication. The end of wild poliovirus transmission is not the end of the story, as certification of eradication, laboratory containment, vaccination policy, and sustainable surveillance and response mechanisms all require continued effort. A feasible target of globally interrupted transmission is set for the end of this year, and preparations for the post-certification period are under way. In four of the six countries where wild poliovirus continues to circulate, (Afghanistan, Egypt, India, and Pakistan); the intensity of transmission is the lowest ever recorded. In Niger and Nigeria, where polio transmission has increased due to low vaccination coverage, the areas where wild poliovirus is circulating have relatively low population density. If multiple rounds of high quality immunization campaigns are conducted in all six of these countries in early 2004, transmission can be interrupted by the end of the year or soon thereafter.

Once transmission has been interrupted, global certification of eradication will require at least another three years (Smith et al, see pp. 24–30) During this period, certification-standard surveillance must be achieved and maintained in every country, and coverage with oral polio vaccine (OPV) must remain sufficiently high to prevent outbreaks caused by vaccine-derived polioviruses (Kew et al, see pp. 16–23, (*1, 2*)) The operational challenge during this period will be to maintain high levels of polio immunization within routine immunization programmes and to keep polio surveillance systems in place.

Effective laboratory containment of wild polioviruses and all potentially infectious materials is needed to prevent the accidental reintroduction. National inventories of laboratories, followed by destruction or secure containment of viruses and specimens, is considered a realistic goal (Dowdle, see pp. 59–66, (*3*)) National laboratory inventories have been completed or are under way in many countries, and WHO's Biosafety Advisory Group is writing guidelines for safe containment and will oversee regular biosafety assessments.

Policy options for post-eradication vaccination have been discussed since 1998. While oral polio vaccine (OPV) has been the vaccine of choice for global eradication, scientific evidence reviewed by a recent WHO ad hoc expert group confirms that OPV use must stop as soon as possible after certification (Fine et al, see pp. 47–52, (*4*)) WHO and UNICEF are preparing evidence-based guidelines to help countries make informed decisions about OPV cessation. The polio partners, including the Global Alliance for Vaccines and Immunization (GAVI), are working to ensure that affordable injectable polio vaccine (IPV), will be available when needed (Sutter et al, see pp. 31–39). Monovalent OPV needs to be licenced for vaccine stockpiles.

Because wild poliovirus used in the manufacture of IPV will also require secure containment, WHO is coordinating the development of industry guidelines and will continue to work with manufacturers and regulatory authorities. The development and licensing of Sabin-derived IPV is also being facilitated as an added biosafety precaution. Development of guidelines and tools is on target and national policies and strategies for OPV cessation should be in place at the time of certification.

Sustained global surveillance and response is needed to counter the risk of polio from a laboratory or manufacturing accident, or a polio outbreak caused by circulating vaccine-derived poliovirus. The International Health Regulations (1969) and the revision process now under way will provide an ongoing and sustainable framework. The operational arm of the Regulations — the WHO Global Outbreak Alert and Response Network — detects, verifies and responds to outbreaks of communicable diseases (*5*). During the three years prior to certification, knowledge, resources and responsibility for response to suspected polio outbreaks will be transferred to the Network.

The WHO/UNICEF stockpile of trivalent OPV, and eventually monovalent OPV and other vaccines, will be managed along the lines of other WHO vaccine stockpiles, such as those for yellow fever, meningococcal meningitis and smallpox, that are on standby for use in outbreak control. The vaccine stockpile and its regular renewal will require financial investment until the risk of polio outbreaks has been reliably eliminated. Polio will join smallpox as the only infectious diseases to have been eradicated. These are monumental achievements — true firsts for science and public health — with many lessons, particularly for the post-eradication phase. After the certification of smallpox eradication in 1980, the budget for smallpox activities fell dramatically. In 2002, the World Health Assembly responded to fears that the smallpox virus might be deliberately used to cause harm. Existing virus stocks were retained to allow essential research under the auspices of the Advisory Committee on Variola Virus Research (*6*). Research includes vaccine development for use in immunosuppressed people, new antiviral drugs, and more specific diagnostic tests. Thus research continues for a disease formally eradicated more than two decades ago. As the articles in this theme issue show, the challenges and issues of polio in the post-certification phase have been assessed. The international community knows what to do to protect the polio investment, and these activities need to be adequately funded. ■

References

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