

Editorial

POLIO ANYWHERE IS A RISK EVERYWHERE

David N Durrheim, Anthony Adams

The 2014 diagnosis of poliomyelitis-like illness in a middle-aged Victorian man on his return to Australia after working in the Horn of Africa, highlights the possibility of poliovirus being imported into any country while the virus circulates anywhere.¹ This possibility is also illustrated by Australia's last confirmed incursion of poliovirus. In 2007 a Melbourne university student was confirmed with polio virus infection after returning from a visit to Pakistan.² Thus the article by Martin et al in this issue of *CDI* is a timely reminder of the importance of: maintaining high childhood immunisation coverage; encouraging travellers into and out of Australia to check their immunisation status against polio; and ensuring strong surveillance throughout the health system for polio-like illness.^{3,4}

Progress by the Pan American Health Organization during the 1980s to interrupt indigenous wild poliovirus transmission in the Western Hemisphere led to the ambitious global initiative to eradicate poliomyelitis.⁵ This was endorsed by the World Health Assembly in 1988 and in the past quarter of a century progress has been remarkable, with the annual poliomyelitis incidence reduced by more than 99%. Only 3 countries (Nigeria, Pakistan and Afghanistan) have never interrupted indigenous poliovirus transmission. The Western Pacific Region was declared polio-free on 29 October 2000 and in March 2014, following the amazing efforts of India to interrupt transmission, the South-East Asian Region has joined the Americas (1994), Western Pacific and European Regions (2002) in being certified as having successfully interrupted poliovirus transmission.^{6,7}

There is no evidence that wild serotype 2 and 3 polioviruses are still circulating anywhere in the world. In 2013 all wild poliomyelitis cases were due to serotype 1. Unfortunately 63 cases of vaccine-derived poliovirus type 2 occurred in 7 countries during 2013 and this has resulted in a decision to replace the trivalent oral vaccine with a bivalent oral vaccine containing serotypes 1 and 3 virus and at least a single dose of inactivated trivalent vaccine as insurance.^{8,9}

Major hurdles must still be overcome to complete the job of eradication. In 2012, 223 polio cases were confirmed in 5 countries, while in 2013 this increased to 407 cases in 8 countries.⁸ Persistent

safe havens for poliovirus in northern Nigerian states and in the border areas between Pakistan and Afghanistan have repeatedly seeded virus to other countries, both neighbouring countries and further afield. Perpetual underperformance of immunisation programs has been complicated by insurgency, targeted killing of polioworkers and diabolical political folly.¹⁰ Some countries that have received imported poliovirus have risen successfully to meet the considerable challenge and expense of stamping out the importation. In China, for example, this required an extensive response with 5 mass campaigns, 44 million doses of oral poliovirus vaccine administered and a direct cost of US\$26 million in outbreak response activities.¹¹ However, the frail nature of health services in other seeded countries and/or their political instability has resulted in polio again establishing a foothold.¹²

The urgency for achieving eradication was recognised by the World Health Organization this year with the declaration that the international spread of wild poliovirus is a public health emergency of international concern. This was accompanied by strong recommendations that Pakistan, Syria, and Cameroon, countries that have recently exported poliovirus to other countries, ensure that their residents and long-term visitors are fully vaccinated against polio before travelling internationally, and that this be recorded in an International Certificate of Vaccination.¹³

There is an unavoidable obligation on all governments to finish the job of polio eradication for all children worldwide and future generations of children. It would be a travesty if the gains achieved over the past 26 years, through massive financial and human resource investment, were squandered. The domino effect of failing to achieve the polio eradication goal would have a profound detrimental effect on other global health initiatives, including measles and rubella elimination. One huge final effort is required to once and for all rid the world of this infectious scourge.

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References

1. Victorian Department of Health. Vaccination alert for Victorians travelling overseas. Accessed on 18 July 2014. Available from: <http://www.health.vic.gov.au/media/vaccination-alert-210514.htm>
2. Stewardson AJ, Roberts JA, Beckett CL, Prime HT, Loh PS, Thorley BR, et al. Imported case of poliomyelitis, Melbourne, Australia, 2007. *Emerg Infect Dis* 2009;15(1):63–65.
3. Martin N, Paterson BJ, Durrheim DN. Australia's polio risk. *Commun Dis Intell* 2014;38(2):E107–E113.
4. Durrheim DN. Remaining alert for polio importations. *J Paediatr Child Health* 2014;50(4):329–330.
5. Robbins FC, de Quadros CA. Certification of the interruption of indigenous transmission of wild poliovirus in the Americas. *J Infect Dis* 1997;175(Suppl 1):S281–S285.
6. Adams T. Farewell to polio in the Western Pacific. *Bull World Health Organ* 2000;78(12):1375.
7. Smith J, Leke R, Adams A, Tangermann RH. Certification of polio eradication: process and lessons learned. *Bull World Health Organ* 2004;82(1):24–30.
8. Independent Monitoring Board of the Global Polio Eradication Initiative. Ninth report May, 2014. Accessed on 18 July 2014. Available from: <http://reliefweb.int/report/pakistan/independent-monitoring-board-global-polio-eradication-initiative-ninth-report-may>
9. Sixty-seventh World Health Assembly. Poliomyelitis: intensification of the global eradication initiative. Report by the Global Polio Eradication Initiative. 21 March 2014. Accessed on 18 July 2014. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_38-en.pdf
10. Mohammadi D. The final push for polio eradication. *Lancet* 2012;380(9840):460–462.
11. Luo H-M, Zhang Y, Wang X-Q, Yu WZ, Wen N, Yan DM, et al. Identification and control of a poliomyelitis outbreak in Xinjiang, China. *New Engl J Med* 2013;369(21):1981–1990.
12. Bhutta Z. Polio eradication hinges on child health in Pakistan. *Nature* 2014; 511(7509):285–287.
13. Rutter PD, Donaldson LJ. Mandatory polio vaccination for travellers: protecting global public health. *Lancet* 2014;383(9930):1695–1697.