The eradication of polio in Bhutan in the context of global polio eradication
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ABSTRACT
Bhutan has made tremendous health gains in public health, particularly in vaccine-preventable diseases. Polio was eradicated two years ahead of the launch of the Global Polio Eradication Initiative and only 12 years after the introduction of oral polio vaccination nationwide. The last case of clinical poliomyelitis in Bhutan was reported in 1986. Bhutan maintains a very high coverage of polio immunisation coupled with a strong health system and surveillance network. The success story in the elimination of polio provides examples for other successful public health programmes now and in the future.

Keywords: Poliomyelitis; Primary Health Care; Public Health; Vaccination.

INTRODUCTION
The last known case of wild poliomyelitis infection in Bhutan was a seven-month-old female infant with fever and flaccid paralysis of the right lower limb admitted at the Damphu Hospital in 1986. The government realized several years later that this was indeed the last case. Bhutan had eradicated polio two years ahead of the launch of the Global Polio Eradication Initiative in 19881 and only 12 years after the introduction of oral polio vaccination nationwide2. How did Bhutan manage to eradicate poliomyelitis more than two decades before the regional certification and just a decade after initiating its national immunization program? The lessons from Bhutan’s experience may provide examples and opportunities to others for similar successful public health programs now and in the future.

The historical perspective and lessons learnt
After the Five Year Plans began in 19613, health development focused on building of infrastructure and training of health workers. Within the next decade, there was a hospital in every district and more than fifty Basic Health Units. With the adoption of the Alma-Ata Declaration in 19784, public health programmes including immunization were initiated as part of the Primary Health Care strategy5,6.

The Expanded Programme on Immunization (EPI) was implemented and oral polio vaccine (OPV) was included in the national immunization schedule in 1979. However, despite providing vaccination in all health centres and organizing dedicated days for immunization, a survey in 1987 found immunization coverage to be only around 20%. A network of outreach clinics were established and Village Health Workers trained in a project to achieve Universal Childhood Immunization by 1990 with the support of the UNICEF and the Italian government, backed by a strong political commitment.

In 1988, under the guidance of His Majesty the Fourth King, the National Assembly through a resolution, called for vaccination of all children against six diseases (tuberculosis, diphtheria, whooping cough, tetanus, polio and measles), women against tetanus and mandated the presentation of the health card with the proof of full immunization7 at the time of school enrolment8. This gave the final impetus for all families to have their children immunized.

In the same year, the World Health Organization launched the Global Polio Eradication Initiative and intensified vaccination against polio and the target for eradication was set for 1997.

The second nationwide EPI survey in 1991 concluded that 84% of all children in Bhutan were fully immunized against the six diseases. On the basis of these findings, Universal Childhood Immunization was formally declared in February 1991 and the first National Health Survey in 1994 did not find a single case of compatible clinical poliomyelitis9. However, the country was still considered at risk because of the close proximity and the open border with India8, weak surveillance system and poor sanitation coverage. A nationwide mass supplementary immunization with OPV and measles vaccine for children and tetanus for pregnant women was conducted in 1995. Thereafter, high-risk population groups in districts bordering India were immunized from 1996 to 2002 with a consistently high coverage of 99% (Table 1). The EPI program has since then successfully maintained coverage above 90% (Figure 1).
The acute flaccid paralysis surveillance was started in 1997 in all hospitals and Basic Health Units. Stool samples collected from suspected cases were sent to the World Health Organization regional reference laboratory for polio in Bangkok for virological confirmation. Today, a network of 29 hospitals and 211 Basic Health Units underpins an efficient surveillance system targeting a number of diseases and reporting through an integrated Health Information Management System.

In addition, the initiation of an online, immediate “National Early Warning Alert and Response Surveillance” (NEWARSIS) mechanism has enabled agencies such as the Royal Centre for Disease Control, hospitals and public health staff track a number of diseases and reporting through an integrated Health Information Management System.

In 2014, the country was certified polio free with all the other countries in the South East Asia Region of World Health Organization.

The last case of polio was reported in 1986 from Damphu Hospital.

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