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Polio eradication – just one final sprint to the finish

ØYVIND STOPLE SIVERTSEN

Øyvind Stople Sivertsen (born 1984), doctor and editor of the Journal of the Norwegian Medical Association.

We have almost eradicated polio, but now vaccine coverage is levelling off. Are we giving up at the finish line?

Foto: Sturlason

Deep in rural Kenya, in the Rift Valley, lies Pokot, which I recently visited. Around half a million people live in this region, most with their own little patch of land. Many live in mud huts. Except for the obvious – cars, advertisements for 4G coverage and mobile phones – life in Pokot is presumably about the same as it was 40 years ago, but with one less visible exception: Almost no child dies.

Aside from clean water, vaccines, especially for children, are the most effective public health intervention in history (1). The most widely used indicator for vaccine coverage is the proportion of children who have completed three doses of DTP vaccine (diphtheria, tetanus and pertussis) before the age of six months, in addition to having received the measles vaccine before the age of one year (2).

Global vaccine coverage has increased almost fivefold in the last 40 years (3). Nearly 86 % of the world's children are now vaccinated, compared to 20 % in 1980. In 2012, during the World Health Assembly, health ministers from 194 countries defined a goal of at least 90 % coverage by 2020, to which we are thus fairly close. Child mortality is lower than it has ever been. For every 1000 live births, 41 children die before the age of five years – less than 20 years ago the percentage was more than twice this (4).

Smallpox was declared eradicated by the World Health Organisation (WHO) in 1980. However, the virus still exists in two official storage facilities in the USA and Russia, and is under the control of the WHO (5). The hope is that we will achieve the same target with polio – the virus that in 1952 resulted in more deaths than any other infectious disease in the world. In 1988 there were 350 000 cases in 125 countries. In 2016, there were only 37 recorded cases, all of which were in Nigeria, Pakistan and Afghanistan (6).

We are therefore well on track, but not all the arrows point in the right direction: Between 2010 and 2016, vaccine coverage levelled off, and in 2016, altogether 19.5 million children were still not fully vaccinated. In rural areas and slum districts, where hygiene and sanitary conditions are poorest, fewest are vaccinated. Those who need it most receive least. Why? And what can we do about it?

Minor events locally can make a major difference: Last year, Kenyan nurses went on strike for five months, wanting better working conditions and higher pay. They no doubt had good reason for this, but the result was that the number of unvaccinated children rose from 157 000 to more than 265 000 (7), and the coverage fell from 85 % to 68 %. This reduction is significant for several reasons, perhaps most important of which is the loss of herd immunity when coverage falls below a critical level, usually between 80 and 90 % (8). The losers in this scenario are children who cannot be vaccinated because they are too small or too ill.

Vaccines in Kenya are provided free of charge at public hospitals or clinics, but the flow of information to the public is often incomplete. During the nurses' strike the vaccines were distributed to private clinics, but many people did not comprehend that they were available and not least, free. This illustrates one of the challenges related to achieving full vaccine coverage. The efforts are vulnerable to events that may arise locally, particularly for countries that lack a

well-developed health service or whose economies are vulnerable. Altogether 28 African countries, including Kenya, do not fund the vaccines themselves (9). They receive aid from external actors, the most important of which is the Global Alliance for Vaccines and Immunization (GAVI). The organisation procures vaccines on behalf of recipient countries, thereby obtaining lower prices. They simultaneously set requirements for the countries' participation through their healthcare systems and direct co-financing.

However, countries that were previously defined as low-income countries have been given the new status of middle-income countries (10). This may lead to a decline in funding from external actors. One of the consequences of this is that the inhabitants will no longer be able to obtain free vaccines, which impacts on poor people in countries that are not poor but have a distribution problem.

Another problem is armed conflict and political conditions. The polio virus has almost been eradicated, but the majority of cases in recent years have arisen in the politically unstable and insecure border areas between Afghanistan and Pakistan. In these areas it is often impossible to guarantee the safety of healthcare personnel, and the public health service is poorly developed (11). A programme that offers children a package containing polio vaccine, schoolbooks and food has been shown to increase vaccine coverage (12).

Vaccines may have an expiry date, but this should never apply to vaccination. It falls to us as healthcare personnel to maintain the pressure to combat diseases that we can do something about. If this is underprioritised now, it makes a mockery of the efforts that have been devoted to eradicating polio and to protecting children against other fatal diseases.

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