

REFLECTIONS

CROSS-DISCIPLINARY APPROACHES TO HEALTH IN HUMANITARIAN CONTEXTS: LEARNING FROM POLIO ERADICATION^{1,2}

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PROGRESS TOWARDS ERADICATION OF POLIO

Polio is a viral disease that can cause paralysis and sometimes death. There is no known cure, but the means to prevent it has been available since injectable and oral polio vaccines were invented in the 1950s-early 60s. The oral vaccine is much easier to administer and requires very little training, but it is made using alive, attenuate virus and has two disadvantages: it requires a cold chain to keep it cool and very occasionally the virus can mutate and cause polio. Nevertheless, following successes with the oral vaccine in some countries in eliminating polio in the 1970s-1980s, in 1988 a resolution by the World Health Assembly (WHA) declared the goal of worldwide eradication of polio by 2000 and established the Global Polio Eradication Initiative (GPEI).

When the Initiative was launched in 1988, the number of polio cases worldwide was estimated to be averaging more than 350,000 per year. By 2000, the number of cases was down more than 99% to about 3,000 – an outstanding achievement, but not yet the end of the story. By 2000, surveillance techniques had improved so that it was possible to measure accurately the number of actual recorded cases, rather than estimating cases. And since 2000 there has been uneven progress and setbacks in the battle against polio, so that the target date for eradication has needed to be revised a number of times.

By 2007, polio remained endemic in only 4 countries – Afghanistan, India, Nigeria and Pakistan. The last case of polio in India was seen in 2011 and India was officially certified as polio-free after the mandatory 3 year wait in 2014 – a considerable success with many useful lessons. But polio cases were still continuing elsewhere and in 2014 WHO declared the continuing international transmission of wild poliovirus to be a Public Health Emergency of International Concern, or PHEIC.

On a brighter note, Nigeria saw the beginning of an interruption of new cases during 2014, so in 2015 there appeared to be only two remaining disease-endemic countries, Afghanistan and Pakistan. But 2015 had

been the latest target date for ceasing all transmission of wild type poliovirus around the world and it was clear that this target was not going to be met. The target date was moved to 2016, with certification to follow in 2019.

Sadly, 2016 was not a good year. In July 2016, Nigeria marked 2 years since the last case of wild poliovirus had been seen, but in the next couple of months, 4 new cases were detected in children who had emerged from the norther region controlled by Boko Haram, and it became clear that there was a residual pool of the virus there which had not been eradicated. This was a setback for Nigeria's efforts, as the clock now went back to zero for their 3-year waiting period; and a setback for the whole global effort. It also emphasises the need for countries to build and sustain resilience to prevent the return of polio. There were also 5 cases of polio in 2016 caused by the oral vaccine itself.

How does the situation look currently? So far this year, there have been 11 cases of polio caused by the wild type virus: 5 in Pakistan and 6 in Afghanistan, and no new cases in Nigeria. And unfortunately there has also been an upsurge in cases of vaccine-derived polio – 47 in Syria and 9 in the Democratic Republic of the Congo. These vaccine-derived cases are a particular signal of disintegrating health systems leading to low vaccination rates. The world is currently in the process of switching from the oral polio vaccine to a fully inactivated vaccine that is given by injection – but unfortunately there is a global shortage of the new vaccine and the switchover is therefore going more slowly than planned.

One consequence of the repeated setbacks in achieving the global eradication of polio is seen by looking at the financial side. In the first 20 years, a bit over \$US 6 billion was expended by the GPEI on polio eradication. The GPEI Strategic Plan for 2009-13 had a planned budget of just over \$US 2 billion; and the current Plan for 2013-18 had a planned budget of \$US 5½ billion. But the failure to achieve eradication of polio in 2015 and the re-setting of the target date to be one year later has

added a further \$US 1½ billion to the costs of the current plan. It is expected that each additional year will add another \$1 billion or so. In response to a funding gap of c. US\$ 1 ½ bn for the GPEI, a pledging session in June raised pledges of US\$ 1.2 billion.

Two of the remaining countries where polio transmission has never been interrupted are Afghanistan and Pakistan. The picture for each has been one of progress and setbacks, with a sudden spike in Afghanistan in 2011, while in Pakistan there was a rise in 2011 and an even bigger spike in 2014. The two countries face some common challenges. Both have weak health systems, but other countries with weak health systems have made better progress. The additional factors

in Afghanistan and Pakistan that are relevant include: insecure areas; attacks on vaccination workers, with many vaccinators and the security people protecting them being killed; opposition from some militant and religious groups – and as well as encouraging violence this contributes to refusals by some families to accept vaccinations; many migrating and displaced people who need to be reached by the vaccination teams; and a porous common border, with many people crossing between the two countries without documentation.

As one of the interviewees this project observed: “If we fail in polio eradication, it will be due to political reasons, not technical ones.”

POLIO TRANSITIONING AND WIDER LEGACY

The end of the polio eradication initiative involves an important transition. The GPEI has been a vertical programme that has run in parallel with other health services, including routine immunization against other diseases. The current programme includes a process for transferring the polio eradication assets to countries, to ensure that they are used to help strengthen national health systems and to support the efforts towards universal health coverage now targeted by the UN Sustainable Development Goals. But in moving from a vertical disease programme to horizontal health programmes in countries, one of the challenges is how to preserve some of the specialised assets like skilled personnel (including vaccinators and managers), cold chains, surveillance systems, laboratory analysis facilities and systems for rapid response.

This transitioning from a vertical global programme to country-level horizontal programmes is a major part of the overall legacy that polio eradication will leave behind – the principal legacy, of course, being the elimination of a disease in human beings for only the second time in history. Another part is the benefit for global health, with the knowledge, expertise and insights into how to organize and sustain a global programme being of potential benefit to possible future disease eradication efforts and to other potential global health initiatives more broadly; as well as the benefit for humanitarian action, which is discussed in more detail below.

There is much to be learned from the specific structures that the GPEI has developed. It was established as a Partnership, initially involving Rotary International, WHO, UNICEF and the US Centers for Disease Control and Prevention and later with others joining including the Bill and Melinda Gates Foundation. At an operational level, oversight of the GPEI is the responsibility of the Polio Oversight Board, which comprises the heads of agencies of core GPEI partners. There is also a Polio Partners Group, which gives voice to a much wider range of stakeholders; and very importantly, with the final goal of global eradication proving to be frustratingly elusive, in 2010 the GPEI created an Independent Monitoring Board which has proved to be a game-changer.

It is important to note that all of this activity takes place in a space that is political as well as technical.

The polio eradication effort has strong humanitarian connections.

- It has managed to deliver vaccinations in very complex political and social contexts; it has developed skill in going the last mile and reaching every child, even in remote and insecure locations and among nomadic people; it has established Emergency Operations Centres in the countries where elimination has proved most challenging; it has organised massive National Immunization Days; and where necessary in conflict zones it has negotiated Days of Tranquillity to enable every child to be reached; and established border camps to reach people on the move.
- Beyond polio, the Initiative has also been involved in the provision of other essential health services where health systems weak, such as routine immunization for a range of diseases, Vitamin A supplements and deworming drugs.
- During the Ebola Virus emergency in West Africa (2013-16), the polio machinery was used to respond to Ebola in Nigeria, which prevented it taking hold in the country.
- In all three of the last polio endemic countries, polio vaccination became highly politicized and the GPEI had to learn how to overcome this, including through community engagement and developing the cooperation of local leadership. It also showed flexibility in adapting to local customs; e.g. through the recruitment of female vaccinators in places where men cannot enter households; and provision of additional health services based on community demands.
- The programme also developed a range of innovative approaches to reach communities that were usually never contacted at all by routine health services.

While most of the front-end action has necessarily been at the country level, regional and sub-regional responses have also been extremely important.

- For example, in places where borders are very porous, border collaboration to establish fixed and mobile immunization camps has been very important, to catch children in groups crossing.
- WHO-EURO was heavily involved in responding to vaccine-related polio outbreaks, e.g. in Tajikistan in 2010 and Ukraine in 2015.
- There were also strong international responses to the reappearance of polio in Nigeria in 2016, with the African Union; WHO-AFRO; and a number of bilateral donors including Canada and Germany providing targeted support to strengthen resilience; and the establishment of intensified vaccination and surveillance programmes for bordering countries as part of a broader humanitarian response plan for the Lake Chad Basin.

Polio has also become a significant factor in response to the recent crisis concerning migrants and refugees:

- In general, fears about risks of migrants bringing infectious diseases have proved largely unfounded. However, the outbreaks of vaccine-related polio in places like Syria and Ukraine have been of concern in Europe and catch-up vaccinations have been instituted at reception points in Europe, with Médecins Sans Frontières playing a leading role in this.
- In this regard it is important to recognise that polio serves as the 'canary in the cage' – and in this case it is highlighting weaknesses in Europe's own resilience. The risks to Europe reflect slippages in vaccine coverage and need to strengthen resilience within region.
- It is the lack of migrants' access to routine health services in destination countries which is the biggest risk to their own health, as well as posing a potential risk to the health of the local population.

CONTAINMENT AND RESILIENCE

Two of the big issues that will continue after polio eradication has been completed are the challenges of containment and resilience. Containment is a major issue for Europe, because there are a large number of research centres and manufacturing facilities in the region where the live virus is kept or handled. There was a discharge from a manufacturing plant in Belgium in 2014 in which 45 litres of concentrated solution of live poliovirus was accidentally released into the sewage system and the treated effluent passed into the nearby river. Fortunately it did not cause any cases of polio. Containment goes hand-in-hand with resilience, i.e. with systems of surveillance that can rapidly

detect any reappearance of the virus in people or the environment and produce a very rapid response.

But, as noted by an interviewee our study, it is very difficult to know how resilient the system is in a country or region if there is no crisis to respond to. It will be impractical to sustain separate resilience systems for polio once the disease has disappeared, and, as noted by another interviewee, the only practical approach is to fully integrate resilience against disease outbreaks within health systems.

OUT OF THE POLIO SILO: LINKAGES WITH HUMANITARIAN ACTION

It has become evident that the future of polio eradication – both the future of containment and resilience and also the future of the polio Initiative's assets – must lie in moving out of the polio silo and into integration with other initiatives and goals. There are many opportunities: the skilled personnel, surveillance, laboratory and response systems and the knowledge gained at both local and global levels, can be valuable assets in many other areas, including new global health initiatives, SDGs and global health security. There are also opportunities for linkages with humanitarian action, including in disaster preparedness and response, in situations where health systems do not operate or have become degraded in zones of conflict or in fragile or failed states, and in relation to the health of migrants and refugees. In all these areas, polio assets can be an invaluable resource.

Beyond the individual contributions that the polio assets can make to each of these areas of health, development and humanitarian action, they can also serve as a bridge, to help bring about a better coordination and improved interfaces between these three critical areas.

To paraphrase a remark made by one of the participants in a dialogue we organized in Brussels in October 2017, people often speak about reaching every last child, of going the last mile for polio eradication, but now "the last mile for polio eradication must become the next mile for the future of health, development and humanitarian action".

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FOOTNOTES

1. Citation of this article: J. Piper, M. Told, S.A. Matlin. Cross-disciplinary approaches to health in humanitarian contexts: Learning from polio eradication. Geneva: Global Health Centre, the Graduate Institute of International and Development Studies 2018.
2. For full details of the project and downloadable publications, see: <http://graduateinstitute.ch/ghp/polio>