GLOBAL HEALTH

Has the billion dollar crusade to eradicate polio come to an end?

The polio juggernaut, which has skidded past eradication deadline after deadline, seems to have finally run out of fuel, reports Robert Fortner

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As covid-19 overran the world, the extensive surveillance and response capacities of the polio eradication programme pivoted towards this new threat. Now, in a surprise move by the World Health Organization, the reorientation looks permanent—perhaps ending a decades long, multibillion dollar crusade engineered by some of the most powerful actors in global health. WHO’s reordering of priorities may also point to a reassertion of its primacy in setting and administering global public health policy.

Since the effort began in 1988 the Global Polio Eradication Initiative (box 1) has pushed polio to near annihilation, pushing down cases by 99.99%. Perhaps tens of millions of people walking today can thank the GPEI. Two of the three serotypes of wild poliovirus have been declared eradicated worldwide, leaving only type 1, which has been cornered in just two countries, Afghanistan and Pakistan, which had a total of 1,430 cases last year.

Box 1: What is the GPEI?
The Global Polio Eradication Initiative (https://polioeradication.org) was created after the World Health Assembly’s 1988 resolution to eradicate the disease. Its goal is to complete the eradication and containment of all wild and vaccine related polioviruses. It has six core partner organisations:

- WHO
- Unicef
- Bill & Melinda Gates Foundation
- Rotary International
- US Centers for Disease Control and Prevention
- Gavi vaccine alliance

However, the live oral vaccine used to accomplish these feats is double edged: the attenuated vaccine strains can revert to virulence, circulate, and paralyse. Afghanistan and Pakistan now report more cases of paralysis from vaccine derived polio than from the wild virus, and a massive outbreak of vaccine derived infections engulfs much of Africa, with more than 1,000 children paralysed last year.

The polio juggernaut skidded past its eradication deadline of 2000, the first in a series of such cycles. The GPEI has been perched, exhaustingly and expensively, at the cusp of success for years. In 2017, for example, Bill Gates predicted that “humanity will see its last case of polio this year.” Instead, cases surged.

WHO’s decision

With eradication forestalled yet again, and ubiquitous covid pressing hard, WHO decided in December last year to accelerate the transition of the polio programme’s infrastructure. Instead of shuttering the GPEI and passing its staff and assets along to other programmes after eradication, WHO scheduled transition to occur before eradication, starting in January 2022.

At that point the “global” eradication initiative would operate fully only in Afghanistan and Pakistan. Other functions and responsibilities would be spun out into existing programmes such as routine immunisation, some landing within WHO, others absorbed and managed by member countries. The decision, reportedly originating from WHO deputy director general Zsuzsanna Jakab, effectively ended the GPEI as a monolithic entity possessed of all the means necessary to achieve eradication. (WHO did not respond to The BMJ’s request to interview Jakab.)

The breathtaking pronouncement drew relatively little notice, until WHO’s regional office for Africa (AFRO) acted on it by firing some 500 polio programme staff. WHO must provide a contractually required nine months’ notice to staff for termination. On schedule, beginning in March, nine months before the January 2022 transition, WHO AFRO’s director general, Matshidiso Moeti, brought the axe down on polio programme staff, surprising GPEI’s partner groups and donor nations.

In a statement a spokesperson for Canada’s government said it was aware of the need to accelerate WHO’s transition plan but that “we were not aware of all steps being taken in advance of implementation, including the termination of GPEI staff in the AFRO region.” Canada, in the critical December 2020 timeframe, called for integration, increased accountability for the GPEI, and expanded donor representation. Canada was joined by Germany and Australia, the UK’s Foreign, Commonwealth & Development Office, and the US Agency for International Development (USAID).

The Bill & Melinda Gates Foundation, topmost funder of polio initiatives and behind only the US government as the largest funder of WHO, reportedly had no idea that the firings were coming and quickly undertook damage control measures, dispatching an envoy to WHO AFRO’s offices in Brazzaville, capital of the Republic of the Congo. The foundation did not respond to The BMJ’s request for an interview. WHO AFRO declined a request to interview Moeti.
"I think Dr Moeti’s point is that primary care is the thing of the future or should be the thing of the present, with routine immunisation and other services all integrated into primary care," comments Liam Donaldson, chair of the independent board that monitors progress towards a polio-free world.5

“The direction of travel is very clear,” says Aidan O’Leary, who started work as the new director of the GPEI after the December transition decision had been taken. “What we are looking at is really making sure that [polio] is part of integrated public health systems . . . Building on that momentum is essentially what AFRO has done.”

The momentum grew with the June release of a new strategic plan that heavily emphasises the integration of polio efforts into routine immunisation and primary healthcare.6 O’Leary says the polio programme is becoming “part of the more mainstream immunisation space,” but this represents a massive turnaround, the programme embracing what had for decades been considered anathema. And integration, once seen as an existential threat, now promises to be the very means for achieving eradication. The world would have “gotten rid of this bugger a long time ago,” says Zulfiqar Bhutta, a paediatrician at Aga Khan University in Karachi, Pakistan. But to succeed “you have to strengthen everything else,” says Bhutta, and, until now, “none in the program wanted to do that.”

The GPEI explicitly separated polio from routine immunisation because eradication requires very high coverage rates: 90% or more. Nigeria, for example, has extremely weak routine immunisation, with coverage of (maybe) 60%, far below the levels reached by the polio only campaigns that have successfully rid the country of the wild virus.7

A costly effort

However, as money is lavished on polio, millions of children, not just in Nigeria, have been left vulnerable to a slew of often deadly, vaccine preventable diseases. This unintentional harm was a “lesson learnt in the early 2000s,” says Oliver Razum, an epidemiologist at the University of Bielefeld, Germany. Razum points back to India, where the “sheer number of [polio] doses that had to be distributed,” twice a year, literally left no space in refrigerators for other vaccines against diseases such as measles. Razum wonders: “Would there have been other ways to spend that money which would have saved even more children from really nasty diseases?”

Polio funds from abroad also led to local brain drains—into eradication and away from local and locally funded health priorities. “Let’s be very honest,” says O’Leary, “member states have been demanding [an integrated approach] for quite some time.”

Some eradication advocates privately voice a second, blatantly neocolonial justification for the polio programme going its own way: foreign nationals, like many of those fired by Moeti, are critical to the successful operation of the polio only programmes, while countries and local staff are an impediment. O’Leary says that “functional reviews” might see some of the released staff in Africa landing new roles. But the power has shifted. “Whether it’s going to be exactly the same people in all cases, that’s going to be up to the regional and country teams,” says O’Leary.

Eradication hawks are concerned or even incensed by accelerated transition and the new strategic plan. The calls for integration, primary healthcare, and a gender equity lens are, in the eyes of some, at best distractions from achieving eradication.

Donaldson observes that “it was always said that the transition cart would come after the polio horse,” transition following, not preceding, eradication. Significantly, Donaldson also chairs the GPEI’s Transition Independent Monitoring Board, which cautioned WHO over aspects of accelerated transition in its latest report.8 Although the pandemic is being invoked to justify transition now, Donaldson says, “The WHO emergency team is dominated by covid and wouldn’t have time to deal with polio outbreaks. And the essential immunisation team, apart from all its other vaccines, is delivering covid vaccine. So it hasn’t got space to do this either.” The pandemic put polio efforts on hiatus for several months in 2020. More than 31 000 polio workers in more than 30 countries turned their focus to covid.9

The GPEI seems to be going ahead. “If you look at Sir Liam [Donaldson]’s report, he did call for bold decision making by WHO in terms of how to progress this particular agenda,” says O’Leary, who argues that covid has created a transition opportunity.

Insiders suggest a stark division among the six core GPEI partners (box 1), with WHO and Unicef driving accelerated transition. Holger Knaack, president of another partner, Rotary International, speaking before he left office last month, said the most important lesson from covid is that “we cannot indefinitely sustain the effort to eradicate polio—we have been on the ‘final stretch’ for several years now.” Rotary, the partner that arguably launched the eradication crusade, did not respond to The BMJ’s request to interview Knaack. The US Centers for Disease Control declined an interview request. A spokesperson for the Gavi vaccine alliance, the newest GPEI partner, said staff vacations prevented a response to emailed questions.

O’Leary describes GPEI partners’ commitment to eradication as “pretty unequivocal.” But the once indomitable tone now seems muted, with O’Leary adding a further caveat: “It’s not just polio eradication. It’s the broader commitment to what I would call global health initiatives.”

Money problems alone are enough to sink eradication. As Gates said at the launch of the new strategic plan, “To be blunt, we are also closer than ever to losing the gains we have fought so hard for [if] GPEI doesn’t identify substantial new resources soon.” The UK has slashed its £100m pledge by 95%. Historically, the UK is the third largest financial backer of polio initiatives, making the blow demoralising as well as financially debilitating. The funding cut leaves a hole of at least 15% in the GPEI’s budget. So far, no big donor has answered Gates’s call.

Neither do countries have money to pay for transitioned pieces of the polio programme. “Basically, there is really no country equipped to take over funding in the transition sense,” says Donaldson. “Africa, which is where most polio resources and staff are, was not nearly in a position to be able to do that.” In what O’Leary describes as a “risk adjusted” approach, transition might be less radical than originally envisaged, with 10 high risk countries in Africa staying under GPEI’s aegis and funding.

The two remaining endemic countries, Afghanistan and Pakistan, have large question marks next to them. NATO’s withdrawal from Afghanistan further heightens unpredictability. The Taliban made large swathes of the population inaccessible to vaccinators but say they are not anti-vaccination. Their ban on house-to-house polio campaigns arose from concerns about how record keeping on inhabitants and vaccinators leaving suspicious looking chalk marks on buildings might have been contributing to deadly drone strikes. Expanded Taliban control could increase the reach of polio campaigns. Donor nations, however, may be more likely to impose sanctions than to fund projects that advance health in a Taliban controlled Afghanistan.
Pakistan: perplexities

Pakistan presents different difficulties. Absent from the global eradication effort, polio wouldn’t rate as a priority. “Why would it be?” asks Bhutta. “You’ve got a country with an infant mortality rate that is among the highest in the region, a maternal mortality rate that’s among the highest in the region.”

Pakistan, where polio is not seen as a priority, is widely criticised for not being committed to eradication. Says Donaldson: “There is this magic thing called ownership. Everybody says you won’t get eradication until the country owns the problem.” But Pakistan is not a political monolith. Gates spoke to the prime minister, Imran Khan, about polio in late June, a kind of annual check in. Khan might be fully committed to polio eradication, but, notes Donaldson, “of the four [polio] affected provinces now, two are run by Imran Khan’s party and two aren’t.”

Part of the animus behind transition is to apply pressure to Pakistan. According to Donaldson the country received $1.6bn (£1.2bn; €1.4bn) between 2016 and 2020, “and it bought more polio, not less . . . And that’s back to the country ownership again. Pakistan can’t just sit there accepting the money and then not perform.” Polio insiders cite numerous shortcomings, such as falsified coverage data and inconsistent progress in which hard fought gains later slip away.

Pakistan has in fact mounted wave after wave of polio vaccination campaigns but with the result that communities became tired of it. “They weren’t just rejecting the vaccine,” says Donaldson, “but were completely hostile to it because it was seen as the only thing that the government was trying to give them.”

Expansion and integration of health services beyond cheap polio vaccines costs money and takes time. And GPEI has neither. The Gates Foundation, which has a larger footprint in Pakistan than WHO, according to Bhutta, is also growing “increasingly frustrated by the lack of progress.” They are tightening the financial screws. “Their model is very much shifting from direct grant support to just making money available,” through debt financed by development banks.

Eradication but not as we knew it

Even if we bravely assume adequate funding, would integrated health service delivery also deliver eradication? If efforts broaden to encompass vaccinating against more diseases and, sometimes, to health services beyond vaccination, will eradication get lost? Integrated delivery has “not ever really been tested for an eradication programme,” says Nicholas Grassly, an epidemiologist at Imperial College London and an independent adviser to GPEI. The only successful effort to eradicate a human disease came against smallpox (box 2). “Smallpox eradication was very much a vertical programme,” Grassly notes, while O’Leary, perhaps forgetting his endorsement of integration, still says that to achieve eradication “you have to remain focused, ruthlessly focused.”

Amid the great flux a paper entitled “Polio eradication at the crossroads” appeared at about the same time as the GPEI’s new plan. The authors, including longtime polio researcher Konstantin Chumakov, suggest that eradication of all poliovirus from the planet has never actually been possible. The reasons include the likelihood of containment breaches of the virus kept in scientific facilities and the ability to synthesise polio.

The problems aren’t new, but the authors use them as the basis for a new policy direction: “The objective of our efforts should be to eliminate the disease, not the virus.” We can still “eradicate polio” because in lay terms both the disease and the virus go by the same name. The means proposed, much as envisaged in the new polio strategic plan, are “global immunisation programmes.”

Bhutta says that GPEI “may need to call the new reality the new eradication.”

Competing interests: I have read and understood BMJ’s policy on declaration of interests and have no conflicts of interests to declare.

Box 2: Short history of eradication

1909: Hookworm

The Rockefeller Foundation’s effort to eradicate hookworm focused on treatment rather than conditions of rural poverty, such as lack of shoes and open defecation, that enabled transmission. Hookworm is still found in the US. The Gates Foundation has funded research into a vaccine.

1955: Yellow fever

The Rockefeller Foundation next turned to yellow fever, breaking new ground by funding research into a vaccine. Eradication efforts focused on eliminating the breeding grounds of the mosquito vector and dramatically drove down yellow fever in the Americas. In 1932 came discovery of an animal reservoir, monkeys, effectively ending eradication.

1952: Yaws

WHO and Unicef pursued eradication of yaws between 1952 and 1964, achieving a 95% reduction in cases. The yaws project was integrated into primary healthcare as a way to get to zero cases. It didn’t work.

1967: Smallpox

Smallpox is the only human infectious disease to have been eradicated. The effort officially began in 1967, and the last case was isolated in 1977.

1955: Malaria

WHO’s attempt to eradicate malaria, mainly relying on DDT to kill mosquitoes, was beset by problems, notably the evolution of resistance to DDT. The effort sputtered, ending in 1970. Malaria resurged in many countries where people no longer had any immunity, resulting in severe illness and death, a still remembered instance of how eradication failure did public health harm.

1980: Guinea worm

Guinea worm eradication, like polio, has reduced cases by 99.99%. But in 2012 animal reservoirs began to be discovered. Efforts continue, but in 2020, besides 27 human cases in six countries, Chad reported 1507 infected dogs and 63 cats and Ethiopia four infected baboons.

2007: Malaria revisited

In 2007 the Gates Foundation unilaterally shifted malaria policy away from control to eradication at the same time it jumped behind polio eradication with a $700m commitment.

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