THE ART OF SURVIVAL:

THE POLIO VIRUS CONTINUES TO EXPLOIT HUMAN FRAILTIES

17

SEVENTEENTH REPORT

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INDEPENDENT MONITORING BOARD

OF THE GLOBAL POLIO ERADICATION INITIATIVE

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The Independent Monitoring Board (IMB) provides an independent assessment of the progress being made by the Global Polio Eradication Initiative (GPEI) in the detection and interruption of polio transmission globally.

The IMB's reports are entirely independent. No drafts are shared with the Polio Programme prior to finalisation. Although many of the data are derived from the GPEI, the IMB develops its own analyses and presentations.

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INTRODUCTION

Our last report followed an in-depth field review of the remaining polio endemic countries. We commissioned and coordinated this important piece of work. Its findings together with the subsequent IMB report led to a searching analysis and the identification of profound reasons for concern about the state of polio eradication at the end of 2018.

One of the underlying messages of these reviews was that the Polio Programme in Afghanistan and Pakistan was not in as strong a position as the epidemiological situation suggested. The public-facing polio narrative and advocacy message was of "nearly there," "one final push," and "polio at an historical low."

The deep analysis from the field review and the IMB's deliberations found:

- Widespread hostility to, and rejection of, the oral polio vaccine in many deprived communities;
- A weak emergency culture not commensurate with the present stage

of the eradication process;
- Oppressive top-down demands stifling local creativity and ingenuity and creating a climate of fear at the frontline;
- The top performing staff not being identified or sent to the most difficult places;
- Action to raise essential immunisation levels unconvincing and inadequate;
- A programme inundated with excessive amounts of data and weak in using insights to improve quality;
- Levels of missed children in Afghanistan very high and rising fast;
- Widespread environmental samples and community mistrust in the Pakistan Programme were not being given proper attention;
- Wild poliovirus circulation in Nigeria could not be ruled out until the security situation improves and surveillance is conducted in inaccessible areas.

Tellingly, even in July and August 2018, no one in middle management and frontline roles in the Polio Programme, who spoke on condition of anonymity to the Review Team or IMB, subscribed to an optimistic view. Most did not see the interruption of wild poliovirus transmission as imminent or even inevitable. The fighting talk was at the more senior leadership levels of the Polio Programme. Below that, in the engine room of the GPEI, there was an air of despondency, fatigue, and uncertainty. We commented on this in our last report.

At that time, in 2018, one member of staff told us that below the surface of the reassurances being given by senior leadership to the IMB lay a "powder keg" of risks and programmatic weaknesses ready to explode.

This situational analysis and the resulting recommendations in the 16th IMB report left the GPEI with a great deal of work to do, some covering very difficult implementation ground that had never been touched before.

The GPEI's planned response was still warm from the printing press when a horror story began to unfold in Pakistan and Afghanistan as the country teams and their United Nations agency partners completely lost control of the polio eradication process.

It is important to make clear that the resurgence of polio is not some sort of biological mystery. It should not have happened. It need not have happened. It is a source of public embarrassment for the GPEI and the two countries' governments.

It is no exaggeration to describe it as a crisis. Even worse, looking more widely at the current state of polio eradication, the crisis has three peaks: the first is the level of wild polioviruses in Pakistan; the second is the way that the escalating restrictions in access in Afghanistan have created a huge immunity gap; and the third peak is the widespread occurrence of vaccine-derived polioviruses.

Vaccine-derived poliovirus is moving across Africa, with vaccine-derived Type 2 poliovirus spreading uncontrolled in West Africa, bursting geographical boundaries and raising fundamental questions and challenges for the whole eradication process. It is already endemic in the Democratic Republic of Congo, with outbreaks there for more than a year. Other countries that have had Type 2 vaccine-derived polio cases this year include Angola, Benin, Central African Republic,

Chad, China, Ethiopia, Ghana, Niger, Nigeria, Phillipines, Somalia, Togo and Zambia (data as of 29 October 2019). Vaccine-derived Type 1 cases have also occurred in Myanmar in 2019.

These polioviruses are causing paralysis, blurring the distinction between wild and vaccine-derived forms of the disease and their impact on populations, and creating challenges and confusion in immunisation programmes.

Health Ministers from Pakistan, Afghanistan and Nigeria led delegations to the October 2019 IMB meeting and made full situation reports as well as outlining their current and future plans. There was then extensive questioning and discussion between each country delegation and the IMB privately.

Following this, they were joined in a larger meeting by the GPEI leadership, country and regional representatives of WHO and UNICEF, donor countries, expert committee chairs and wider polio partners. These discussions with the countries were open, searching, intensive and commensurate with the seriousness of the polio situation.

The IMB also led a series of thematic discussions on: the outbreaks of vaccine-derived poliovirus; vaccine refusals; bans; multiply-deprived communities; and new thinking.

In this, our 17th report, we will try to make sense of the present situation and offer further advice and recommendations building on our prior report.

PAKISTAN AND AFGHANISTAN

During the summer of 2019, the gravity of the situation of the Polio Programmes in Pakistan and Afghanistan has become clear. There is, as yet, no clear and credible route back to the path of eradication. Moreover, there are many fractious relationships at all levels of the Polio Programme, angry communities, and a loss of staff morale at the frontline.

The GPEI and the IMB have repeatedly stressed the importance of seeing Pakistan and Afghanistan as one polio epidemiological block. This perspective is now deeply embedded in the Polio Programme's thinking and planning. It is appropriate given the common poliovirus reservoirs and the well-established population flows between the two countries. This thinking also led to the creation of a new polio "Hub." This organisational structure has been set up since the last IMB report and has the intention of unifying the GPEI's leadership and coordination functions within closer proximity to the two national jurisdictions. Technical Advisory Group (TAG) meetings have recently been held and offered detailed advice to both countries.

The number of cases of wild poliovirus in Pakistan stood at 77 on 29 October 2019 and at 19 in Afghanistan on the same date. The corresponding figures for the same time in 2018 was 6 for Pakistan and 19 for Afghanistan.

In Pakistan, 15,000 babies are born every day. The comparable figure for Afghanistan is 3,000. This is a formidable accumulation of susceptibles every day, if there are insufficient women vaccinators and monitors, especially in remote areas, getting into the houses to check the newborns.

In creating a single epidemiological focus, it is essential not to oversimplify the perspective. It is vital for the Polio Programme to base thinking on the realisation that cultures, attitudes, politics, and behaviours are very different within and between Pakistan and Afghanistan. These drive the emergence of the poliovirus as much as traditional epidemiological factors and heavily influence the successes and failures in trying to eliminate it.

The Polio Programme, both within the GPEI partnership and at country government level, has struggled during the lifetime of the IMB's evaluation of their work to embrace this duality. Only by integrating the technical and epidemiological perspective with the human factors can transformational results be achieved.

In this section, we look in depth at the factors and root causes fuelling the resurgence of the virus in the two countries separately and within their varied cultures. We also respond to the current and planned activities as set out by their governments.

PAKISTAN

Early in 2018, the Polio Programme in Pakistan believed that it was on the brink of interrupting wild poliovirus transmission. Just over a year later, the epidemiological picture in the country represents a massive reversal of the trajectory to global polio eradication.

Anatomy of a crisis

This has come about for five reasons. Firstly, the Polio Programme had an overconfident assessment of its level of performance moving through last year. Secondly, certain deep-seated factors, including the negative attitudes and anger of communities, were not seen as important enough to need transformative ideas and strategies. Thirdly, political consensus on the importance of eradicating polio in Pakistan has been lost; coupled with this, divisive and dysfunctional working relationships, within and between the government's polio team arrangements and those of the United Nations agencies, have prevented high quality programmatic performance. Fourthly, rumours and deliberate social media seeding of misinformation about the polio vaccine has had a big impact on refusal rates. Fifthly, organised boycotts of the Polio Programme to gain political concessions have reduced some communities' acceptance of the polio vaccine.

The evidence of the impact of all this on the pattern of polio in Pakistan is clear for anyone to see: 2019 has been an *annus horribilis* for the Polio Programme and a year of triumph for the poliovirus.

Polio resurgence

Polio in Pakistan began its resurgence in the third quarter of 2018, and intensified in the second quarter of 2019, with a record number of cases (38) in that quarter alone. This was followed by 30 cases in the third quarter of 2019. Major outbreaks have occurred across North and South Khyber Pakhtunkhwa (57 cases) (data as of 25 October 2019). There is also intense virus circulation in parts of Punjab, Sindh and Balochistan.

The pattern of poliovirus-positive environmental samples is another indication of the depth of the problem. Within the core reservoirs of Peshawar, Karachi and Quetta block, 69% of samples were reported to be positive in 2019 (data as of 19 October 2019). This is compared to only 29% of samples in total in 2018.

Outside core reservoirs, there has been entrenched transmission in Lahore (88% of 2019 environmental samples were positive (data as of 19 October 2019); indeed, three sampling sites out of five were reported as 100% positive. Within the core reservoirs (Peshawar, Karachi and Quetta block), transmission has been most intense in Karachi; all 11 environmental sampling sites have reported positive for wild poliovirus.

Increased geographical dispersal of the virus is striking: 25 districts have reported polio cases so far in 2019. The comparable figure for 2018 was five districts. The number of infected districts, having either polio cases or positive environmental samples, has almost doubled: 51 (as of 2 November 2019), compared to 27 this time last year.

Independently assessed technical performance (LQAS) of the Pakistan Polio Programme has gone from bad to worse: the most recent vaccine rounds in Islamabad, Punjab, and Sindh scored 44%, 64%, 56% against a benchmark of 90%.

The government's response

The Pakistan government has made strong statements of commitment and intent in response to the adverse polio situation in the country. The new Health Minister and the Prime Minister's Focal Person on Polio Eradication have led a programme of action.

Since taking office, Prime Minister Imran Khan has shown strong and committed leadership. He was already a great supporter of the Polio Programme in his previous political role and this has been carried over to his new role as the country's leader. Added to this, his strong personal and political emphasis on social justice is a powerful positive force connecting to the deep needs of polio affected communities in Pakistan.

The Prime Minister had tasked his Focal Person on Polio Eradication and the new Health Minister with finding out what was wrong with the Polio Programme in Pakistan and why there is still on-going transmission in the country.

At the IMB's October 2019 meeting, Pakistan's Health Minister and the Prime Minister's Focal Person reported on a meeting of the National Polio Taskforce a few days previously that had been chaired by the Prime Minister. There were four major action points agreed for immediate implementation.

First, to launch an intensive mass media campaign to counter misinformation and create awareness of the importance of polio vaccination.

Second, to increase community engagement to help improve the overall health of polio vulnerable and neglected communities through coordinated efforts. The government of Pakistan had already launched a major social protection and poverty alleviation programme called *Ehsaas,* (which means "Empathy"). This is being directed at many of those areas where there are communities most vulnerable to polio.

Third, to achieve close coordination and full support of the Pakistan Army to help create a secure and enabling environment for the frontline health workers.

Fourth, to emphasise the Prime Minister's personal commitment and presence to finish the job, and his engagement of all chief ministers to support the Polio Programme.

The Minister also spoke about the high-level programmatic and technical review that he commissioned. He saw it as a "review of the reviews" that synthesised all major points from other reports that had recently scrutinised the Polio Programme in Pakistan, including the 16th report of the IMB.

The Minister said that one of the major current "bottlenecks" is the adverse way that communities across the country perceive the Polio Programme. This is being addressed in a communication strategy which includes a new "perception management initiative" to reduce misconceptions about the Polio Programme. All major media outlets have been taken on board. The Minister made clear the need for a unified vision, combined effort and robust management of the Polio Programme in Pakistan to put polio eradication back on track. He told the IMB that the focus has been on identifying high quality provincial leadership; in this respect, major changes have been made to provide strong oversight of a new provincial implementation programme. The Minister said that "the best of the best" officials from the civil service had been appointed to these roles.

The Pakistan government has met with GPEI partners over the last couple of months and is currently reviewing existing and proposed "organograms" below national level and related oversight structures. This is based on insight and recommendations made by the management consultants McKinsey & Company.

The Minister also said that Polio Programme is rethinking approaches to mitigate the threat of on-going outbreaks and reduce the number and scope of vaccine rounds to create a buffer space, to improve the quality of planning.

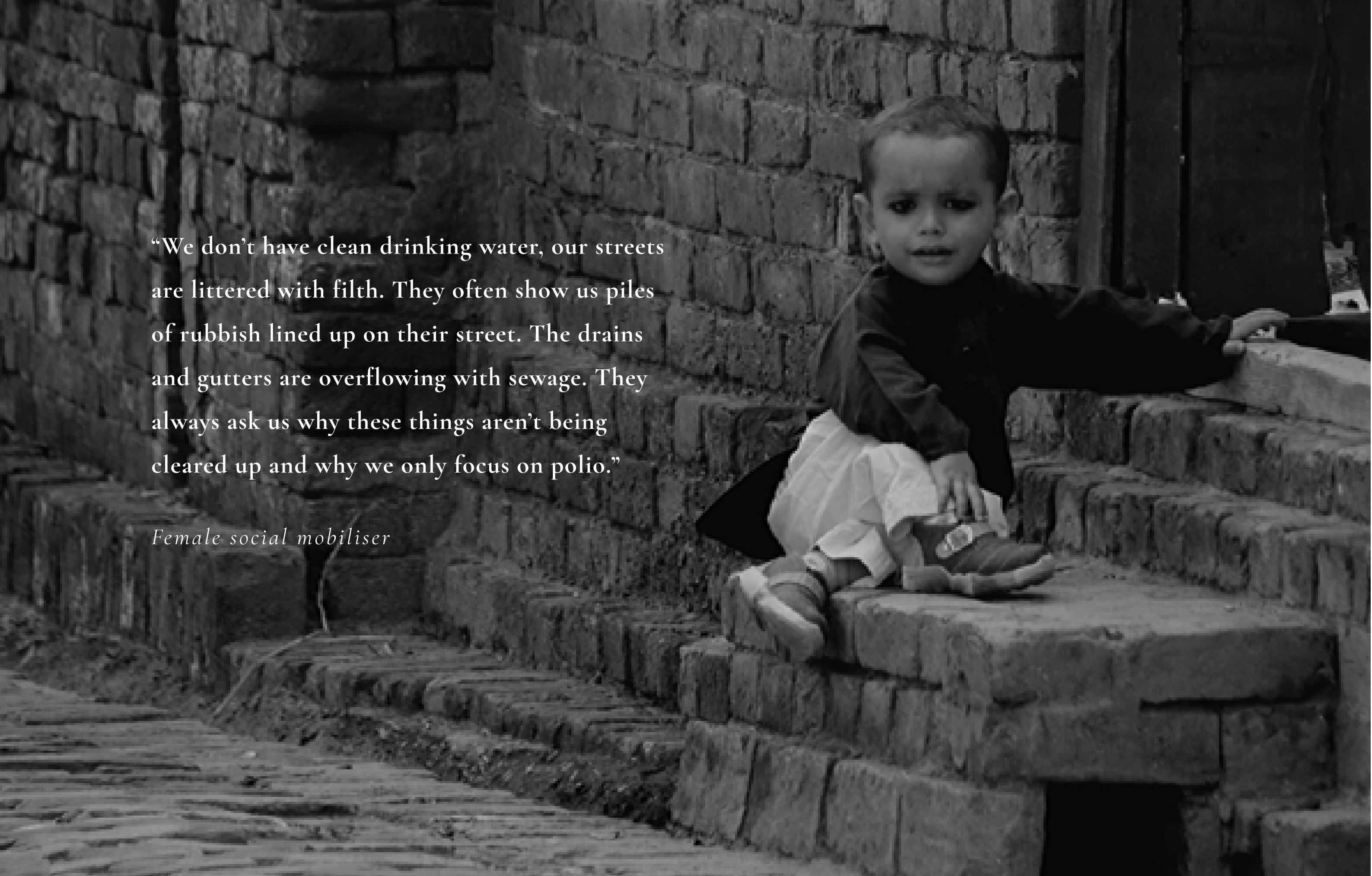
The National Emergency Action Plan is also being updated. This will reflect the revised areas of work and activities to address the critical gaps.

Additional efforts are also being made to enhance programme coordination between Afghanistan and Pakistan, an essential strategy to stop poliovirus transmission in this common epidemiological block.

It was clear from listening to the Minister and the Prime Minister's Focal Person that there is huge pressure on the government to reverse the deteriorating situation that has shocked external polio observers.

GPEI thinking

The GPEI view of the situation in Pakistan is not to have unrealistic expectations and that 2020 should be a "year of transformation" for the Polio Programme. This is based on an understanding that major shifts in community perceptions, deep managerial changes in high-risk Union Councils and other actions in the next low season will not deliver immediate



success. Core endemic reservoirs still need to be cleared but, in the houses being visited, at the crucial moment of delivering the vaccine, the Polio Programme's goal is too often breaking down at the doorstep. The Polio Programme has been chasing a dream of rapid reversal of the problems but things are not yet going its way.

The GPEI sees that the Polio Programme in Pakistan should really take the time to improve across the board to get to peak performance.

Once it is at peak performance, there can be acceleration to interrupt transmission.

IMB evaluation

The IMB has reviewed the situation in Pakistan using multiple inputs: data provided by the Pakistan government's polio team; presentations and discussion with the Health Minister and the Prime Minister's Focal Person; views and information from the Polio Partners' leadership and operational staff; insights from donors and wider partners; polio experts; multiple sources of information from the front line; and the known patterns of "behaviour" of the poliovirus itself.

The IMB has studied, discussed and reviewed the Pakistan Polio Programme continuously over eight years. For this reason, it is able to take a genuinely strategic perspective that is more difficult for those delivering the Polio Programme to do. It is able to see the wood for the trees.

Since the IMB meeting, there has been further change to the overall leadership of the Pakistan Polio Programme when it was announced that the Prime Minister's Focal Person has resigned.

The IMB has reflected, in particular, on the Pakistan government's analysis of the polio

situation in the country and their plans to turn it around. The external international pressure on the country to finish the job is intense.

The doubt is whether the action being planned and taken has the subtlety, creativity and transformational power to break out of the ties that are binding the Pakistan Polio Programme into a state of mediocrity. By this time next year, nearing the end of another polio high season, once all the new ideas and initiatives have been implemented, the detailed recommendations of management reviews addressed, and all the money spent, will the Polio Programme in Pakistan have made "game changing" steps to deal with the root causes that help the poliovirus to continue to survive in the country? Or will the year's work have left the smaller challenges overcome but the intractable problems unresolved?

The epidemiological situation, that we have spelled out earlier in this section of our report, is grave and of very deep concern. Pakistan has reported more than 80% of the total global polio cases this year, with 90% of them reported outside the traditional core reservoirs (data as of 25 October 2019). The September 2019 campaign reported the highest number of missed children in Pakistan, ever.

Throughout the lifetime of the IMB, the Technical Advisory Group for Pakistan has made helpful and constructive criticisms of the Polio Programme in Pakistan allowing technical areas to be addressed and strengthened. The Technical Advisory Group has worked closely with WHO and invariably its reports have been rather encouraging, with a tendency always to see light at the end of the tunnel. However, the most recent report of this committee made a searing and devastating condemnation of the state of polio transmission in the country. For example, on Khyber Pakhtunkhwa (KP): "The programme in KP has shifted from being an example to the country as a whole to becoming an emblem of the national programme's current crisis. KP has re-assumed its position as a major global barrier to polio eradication." And on Karachi: "Transmission in Karachi is now everywhere." And on Punjab: "Signs of programme deterioration are everywhere." According to the McKinsey & Company management review referred to by the Health Minister in his presentation to the IMB, campaign processes at each stage: "Follow a formulaic procedure and are burdensome, without a focus on solving problems".

Four major threats to progress

The IMB sees four major barriers to interrupting poliovirus transmission in Pakistan. They are not just simple practical problems that can be unlocked with a burst of targeted interventions. Each is a monolithic, granite-hard threat to the Pakistan Polio Programme's success.

1. Absence of political unity

Until recently, there was broad political consensus in support of polio eradication in the country. This is no longer the case. The Polio Programme and the importance of delivering the polio vaccine has become a political football.

The Polio Programme remains particularly susceptible in areas where the power structure is divided between different political parties.

For example, Karachi, a city of 22 million people, is a longstanding ruling haven of the poliovirus. The Pakistan People's Party controls the provincial government, whilst the city government has largely been disempowered; it is run by the Muttahida Qaumi Movement, a regional political rival. The Pakistan Tehreek-e-Insaf (PTI), of course, governs at the federal level. It manages the overall polio vaccination effort. This fragmentation of power can lead to problems in efficiently carrying out vaccination campaigns.

If the government only goes into a neighbourhood for outreach through an elected member of parliament, those who supported his rival are more likely to be sceptical of the Polio Programme.

How can the people of Pakistan have faith that the Polio Programme is working in their interests if they hear conflicting messages from their political leaders?

At the October 2019 IMB meeting, there could not have been a starker contrast between the Nigeria and the Pakistan government delegations. Both groups were led by Health Ministers and those running the programme delivery. However, the Nigeria delegation included all three Chairmen of the Health Committees in the House of Representatives and the Senate, who were from different political parties.

And what is more, Nigeria has just had a national election, just like Pakistan.

2. Dysfunctional teamwork

When the Polio Programme performs badly, the IMB has found in the past that blame is shifted and deflected. The Polio Programme is in such a moment. It is a tense period, when the eradication effort has faltered badly. In the past nine months, there has been a deterioration of relationships, in-fighting, silo-based working and behaviours driven by fear of the consequences of failure.

Initiatives were launched with insufficient consultation and collaboration. Everyone in the Polio Programme needs to remind themselves that they are "one team," a single force united in pursuit of a global public good of enormous importance. This is not happening at the moment.

A one-team approach would convene all the key stakeholders, leaders, experts and representatives of communities and ask: "What do you think about this strategy? Will this work? What other things are missing? How does it need to be aligned? A strategy that is fragmented, or that has been drawn up by a

selected few without adequate consultation, is a strategy that is doomed to failure.

3. Alienated and mistrustful communities

The poliovirus is being chased around in communities with very little effort being made to really understand those communities and work with them. Stories from caregivers at the frontline indicate that they believe polio workers only worry about their own salaries, not about the health and well being of communities. The worst possible approach to a tribal society is to just "tell them" to take the vaccine. It is essential to sit down with them and listen to their concerns, and show that the programme cares about them.

Much more attention needs to be given to isolated communities, tribal populations and environments with extreme social and economic deprivation. These are people and places where trust in government is low. Much action is being directed at this problem but is it based upon imaginative strategies to rebuild that lost trust? Community engagement is not about provision of information alone. Nor is it simply a process of persuasion but is a true, authentic, and respectful dialogue with the community to listen to and meet its needs. And, that dialogue must be followed by actual commitments to address the valid concerns of the community, ranging from health concerns such as safe water and medical care for leading conditions, to broader social concerns on security, education, employment, and more.

These major themes are examined in depth in a section later in this Report.

4. Sub-optimal technical performance

There was a moment during the 12th IMB meeting, held in October 2015, when a member of the board asked one of the leaders of the GPEI: "Do you consider it possible to interrupt wild poliovirus transmission with only mediocre programmatic performance?" The reply was: "Absolutely. Yes."

This astonishing comment did not seem credible and in the report, titled *The Time Has Come For Peak Performance* the IMB called for a consistent level of excellence, conforming with best practice, to be embedded in the culture and practices of the operational delivery system of the Polio Programme.

Four years later, even leaving aside political factors, the operational side of programmatic performance in Pakistan is still in the territory of mediocrity rather than at the peak of excellence. Of course, there will be variability in the quality of individual teams. Some are indeed top-level performers but too many are not. This difficulty is not unique. Indeed, it is common to any system whether in healthcare or many other industries. The solution is to set a best practice standard and train, develop and lead teams to deliver it not just sometimes but every time they go out.

This is easier with polio than many other health programmes because best practice is clearly established and has successfully eradicated polio around the world over a period of 40 years.

Those with direct experience of the successful Polio Programme in India speak of the value of a management style that places great emphasis on creating thinking time for teams at the frontline.

In the India Polio Programme, typically team leaders and supervisors would take a midday break, sit together and pool their understanding of what the problems had been in the morning shift before going back to convert the houses. That is a time when a supervisor can give support to the vaccination teams. It is the time when the local influencers who are listed on their micro-plans are available.

The powerful transformative effect that data and discussion can have on improving frontline performance is there for the Polio Programme in Pakistan if it would only reach for it. Campaign quality – how to capture persistently missed children who are harbouring the virus in some of the most deprived and resistant communities- has never been right in Pakistan. With such short time in-between vaccination rounds, it is impossible to catch more children than the last. The IMB field review, carried out in the summer of 2018, strongly emphasised the need for improved use of data, and more time in-between rounds to heal relations with resistant communities. The number of persistently missed children will never be reached with a three-week interval.

The IMB has found the GPEI and the country Polio Programme in Pakistan very slow to learn, or adopt best practice from elsewhere. Top programmatic performance is achieved when the best technical standards and procedures are delivered after being shaped and focussed by accurate and timely local knowledge and context.

Transformative solutions are badly needed in certain key areas. For example, the Polio Programme in Pakistan has not been able to maintain strong immunity levels in high-risk migrant populations. Most of their routes are predictable and should be very well known to the Polio Programme by now. The right level of sophistication in mapping them where they actually come in and settle and having dedicated teams for them is just not there.

Similarly, it seems extraordinary that the IMB's analysis found that 89% of all paralytic polio cases over nearly the last eight years have been in Pashto speaking families (data as of 25 October 2019). Yet, the GPEI does not seem particularly interested in this striking statistic as an opportunity for a major breakthrough.

AFGHANISTAN

In Afghanistan, the 2019 cases initially were mainly in three adjoining provinces in the south of the country: Helmand, Kandahar, and Urozgan. However, recently the east and the southeast of the country have been affected (Kunar, Nangahar and Paktika).

Inacessibility mounting

The problems of inaccessibility have mounted: there were one million children missed in May 2018 for this reason, 800,000 in areas of the south controlled by Anti-government elements.

The current position of between four and nearly six million inaccessible children dwarfs these numbers.

This came about because the June 2019 planned vaccine round did not take place at all because effectively the Anti-government elements had imposed conditions which amounted to a total ban and all 10 million children in the country being denied the vaccine.

A few days before the IMB, a partial lifting of the Taliban restrictions was announced. WHO can now conduct health facility-based vaccination. The chances of meeting eradication goals within this framework are low to non-existent. However, any attempt to expand these activities may lead the Polio Programme back to inauspicious and suspicious territory, setting it back even further. The overall security situation in Afghanistan is not expected to rapidly improve anytime soon.

In accessible areas of Afghanistan, the quality of campaigns is variable. Hardcore refusals characterise Kandahar, with little improvement in recent years. The proportion of refusals in Kandahar City across the rounds in 2019, ranges between 30% and 43%.

The government's response

At the 17th IMB meeting in October 2019, the Afghanistan Health Minister emphasized the volatile security situation that has further deteriorated over the last year. More than 3,000 civilians lost their lives in the country and about 6,000 were seriously injured in violent attacks.

In addition, the Minister and his team have faced increasing opposition to implementing the polio vaccination campaigns from Anti-government elements. The ban on house-to-house polio campaign vaccinations has been in force since May 2018. Initially, it covered some areas in the southern region of the country, but since April 2019, it had been imposed everywhere. In the Minister's opinion, this constitutes the most significant challenge in trying to consistently reach every child with the polio vaccine.

The Minister wanted the IMB to understand that the campaigns that have been carried out were implemented in an environment of fear and life-threatening risks. Frontline staff received multiple death threat calls and messages. Some of the polio workers were physically threatened and detained but many of these brave people managed to complete the campaigns in targeted areas.

The Minister pointed out that poliovirus transmission is currently restricted mostly to the parts of the southern region that have been inaccessible to campaigns. Overall, 18 of the 19 polio cases in 2019 had been in areas covered by such restrictions since early 2018. The Polio Team in Afghanistan is cognisant of the significant risk to the east and southeast regions due to intense polio transmission in the bordering areas in the Khyber Pakhtunkhwa Province of Pakistan. The Minister assured the IMB that the team is taking all possible measures to ensure sensitive surveillance and enhanced population immunity in these regions, with special focus on the border areas and high-risk mobile populations. He considers the likelihood of any missed transmission to be low, including in the areas not currently accessible for vaccine rounds.

The Minister also explained that, in addition to case based (acute flaccid paralysis) surveillance, Afghanistan continues with environmental surveillance from 21 sampling sites, representing all the regions in the country. It has also established targeted periodic healthy children sampling in the chronically inaccessible areas. The Polio Programme adopted a site-to-site vaccination strategy to mitigate the effect of the bans. Three site-to-site campaigns were implemented in the southern region from January to March 2019.

When, later, in April 2019, the Anti-government elements announced the ban everywhere, the safety and security of the frontline polio workers had to take priority and the planned vaccination rounds in April, June and July 2019 could not be implemented. After careful assessment of the security situation, two vaccination campaigns were implemented during August and September 2019 in the accessible and relatively safer areas of the country. Overall, 51% of targeted children were reached during the August 2019 campaign, whilst 57% of children were reached during the September 2019 campaign. Kandahar City, described by the Minister as

"the engine of transmission," was covered in September 2019 after almost six months and more than 155,000 children were vaccinated.

The number of permanent vaccination points was almost doubled, and strategically placed to catch and vaccinate children from the inaccessible areas. The number vaccinated went up from a monthly average of 1.2 million to almost 2 million in July 2019, against a target of almost 10 million under-5 year olds in Afghanistan. Moreover, polio staff got engaged to support the essential immunisation activities in the highest risk areas.

Essential immunisation activities are also hit by insecurity, mainly while performing the outreach vaccination activities in Helmand, Urozgan and Kandahar Provinces in the south region. According to the latest Afghanistan Health Survey (2018), the places which are high-risk for polio, are also those that report the lowest rates of Penta 3 coverage: Kandahar (29.5%), Helmand (17.4%) Urozgan (3.1%) and Zabul (2%).

The percentage of 'never educated' people in the country is at 62.5% nationally. Some of the highest percentages of this indicator are also in the provinces most at-risk of polio: Kandahar (87.7%), Urozgan (95.6%), Nuristan (91.7%) and Helmand (84.1%). The same survey indicated that, at a national level, only 25% of households have proper toilet facilities and only 24% of children have an adequately diverse diet.

Efforts are being made at all levels to restore complete access for house-to-house vaccination and full preparedness maintained for any opportunity to vaccinate the children, especially in the highest risk provinces.
In general, the number and proportion of children missed due to parents' refusal have not been as high as in Pakistan. Nevertheless, there is a large number of families who are repeatedly refusing the vaccine: in the southern region, (mainly Kandahar City), in the southeast region (Paktika and Khost Provinces) and most recently in Kabul. Anti-government elements do not allow the use of essential methods (such as tally sheets and recording tools) in some parts of these two regions, leading to loss of precision in estimating the number of refusals.

The Minister told the IMB that his Polio Programme plans to have an independent review of the Immunisation Communication Network before the end of 2019 to optimise their presence and functional modalities and enhance its usefulness towards addressing refusals. There are also plans to enhance its collaboration with other basic health initiatives to offer integrated services to the marginalised and underserved communities in Helmand, Kandahar and Urozgan Provinces.

The Minister explained that he and his team have used the time during the ban to focus on taking measures towards improving the quality of programme activities. They took special measures to strengthen accountability mechanisms. For example, Kandahar districts were divided into three tiers based on access and operational challenges. District focal points were assigned for high-risk districts, with clear terms of reference and deliverables. There is a no tolerance policy for any performance

weakness in the tier one and two districts. The risk categorisation defines 15 focused districts, 36 high-risk districts and 34 very high-risk districts.

IMB Evaluation

The IMB reviewed the situation and prospects for the Polio Programme in Afghanistan. On 25th September 2019, a few days before the 17th IMB meeting in London, the Taliban issued a further statement announcing the lifting of the ban on polio campaigns and resumption of WHO activities in Afghanistan.

This is a development in the right direction. However, house-to-house or mosque-to-mosque vaccination is still not permitted in the areas with ongoing polio transmission. Rather, just health facilities or clinic-based vaccination is allowed. A health facility based vaccination strategy is not enough to stop polio transmission in Afghanistan. The IMB was told that the Polio Programme in Afghanistan is "yearning for the day" when access for house-to-house campaigns will return. This sentiment could be misguided. Site based vaccination may be the new norm for the foreseeable future. Moreover, performance levels in previous house-to-house campaigns were very variable.

The government did go ahead with a campaign in August and September 2019 but only in accessible and relatively safe areas. Areas with intense transmission in the South could not be reached. It is clear from the data that immunity gaps are beginning to widen. The programme is seeing more zero-dose acute flaccid paralysis cases.

The plan for clinic-to-clinic vaccination involves mobilising children to come to the clinics. This means ensuring that every village is covered by basic health facilities. The aim is to achieve this by setting up new clinics, upgrading ones that are not fit-for-function and using mobile health facilities if needed. All this will be very difficult considering how dispersed the populations are and that the Pashto-belt, historically, has the lowest number of health facilities per capita.

The Polio Programme in Afghanistan operates in a highly complex geopolitical environment that is fast moving and subject to unpredictable change. Elections are supposed to be happening soon but many people speculate that they will be delayed. There is a peace and reconciliation plan that could bring some sort of political change, but the prospect of this currently seems distant. Even should it happen, it may lead to immediate access for polio vaccination but, alternatively, the country could become more violent and disrupted.

Either way, the context for operating the Polio Programme will change and the sources of difficulty and the ways of delivery may be different by this time next year.

What is the best way for the polio programme to weather those changes? A clear path is to work more systematically with the village elders, the Shuras, and the local community to allow activities to continue no matter who is in charge and what is going on.

IMB sources close to the frontline point to some GPEI partners muttering about lacking confidence in the government. Ideas and suggestions are opposed. There seems to be wariness about letting the government team take charge and a feeling that it lacks expertise and technical know-how.

These attitudes risk disempowering a government that needs to take ownership of the polio initiative. Simply pointing to the guidance in Technical Advisory Group reports can give a paternalistic and patronising impression, especially if it comes from those who spend little time in the country, do not really understand the local dynamics, the social milieu, the complex basis of the conflict, and the wider political context.

The 16th IMB report commented on the complexity of the Afghanistan Government and GPEI management structure, with apparently competing roles and chains of command. As has happened in the past, at its meeting, the IMB was reassured that all is "sweetness and light" in relation to programme governance and management.

From the IMB's perspective, the arrangements in Afghanistan still fall short of a "one-team" approach, a problem dogging the Pakistan Polio Programme (as described earlier in this report). For example, in Afghanistan, the Emergency Operations Manager and the Health Minister's Focal Person both sit in the same office but the difference in their roles and responsibilities remains unclear. IMB sources in the field complain that they receive different instructions from the same office. There are also residual tensions between the Government, Donors and GPEI Partners who seem to see things from a different point of view.

The GPEI's top leadership should be completely intolerant of the lack of a one-team approach. They should show a willingness to help the Afghanistan government's polio team to take a stronger leadership role. The time and space created by the bans should be used to greatest creative effect with everyone working together.

The quality of implementation of the Afghanistan Polio Programme remains a major challenge, mainly in the southern region. This is not limited simply to restrictions in access but also there is interference by Anti-government elements in the selection and management of the frontline workers and a low proportion of female volunteers in the vaccination teams.

One IMB source, speaking on condition of anonymity, revealed that in one district of Kandahar, a "Refusals Resolution Committee" converted just one refusal child in one month, whilst costing the programme $2,200 per month. If this is true, it is a disgrace.

NIGERIA

Nigeria has reached the milestone of no case of wild poliovirus reported anywhere in the country for three years.

The Nigeria delegation to the 17th IMB meeting in October 2019 included Nigerian legislators represented by the leadership of health committees in the National Assembly. They have all been supportive of the polio eradication effort in their country.

Wide political commitment

In the four months since Nigeria's current administration assumed office, the commitment of the political leadership at all levels, especially of State Governors, has become stronger. More Governors have paid up their counterpart funds during the polio vaccination rounds than ever before: 52% of them paid up in July 2019, compared to 40% in the same period last year.

The government's response

The new Nigeria Health Minister told the IMB that given the present strength and sensitivity of the surveillance system, a promising essential immunisation trajectory and the quality of

vaccination rounds, he was confident that the country has contained the 2016 outbreak of wild poliovirus and is on track to certification. The last case was in Borno, 21 August 2016. Surveillance reach has been increased, especially the northeast zone, expanded access to vaccination has been achieved in security-compromised areas.

The Minister reassured the IMB that there was no attitude of complacency.

The Minister also stated that the presence of circulating vaccine-derived poliovirus Type 2 in Nigeria offends his vision of a polio-free world.

The Nigeria programme has conducted a comprehensive review of possible challenges threatening the effective and sustainable interruption of vaccine-derived poliovirus outbreaks. Action includes: increasing the engagement of traditional, religious and political leaders; scaling up the quality of monovalent Type 2 oral polio vaccine campaigns; driving harder the country's essential immunisation effort.

Strengthening essential immunisation and improving primary health care services to citizens are major challenges and are reportedly key elements of the government's post-polio eradication plan. They are building the wider primary health care system and helping to address the country's public health security resilience systems. Every primary health care centre is supported by a ward development committee made up of leaders and women who are engaged directly with the centre to oversee the activities there, to raise demands, to encourage people and their health seeking behaviour.

In 2016, most of the northern part of Borno State was inaccessible due to the insurgency. The situation has been improved by military operations enabling access to vaccination in every part of the state. Now, a total of 336 geo-locations have been reached by surveillance in inaccessible areas. There has been a reduction in the number of unreached under 5 year old children in Borno State: from 161,713 in September 2017, to 43,000 in June of 2019. This drop is mainly attributed to updated satellite imagery following the 2018 rainy season, which gives a better indication of abandoned settlements than previous methods.

There has also been a progressive scale up of environmental surveillance across Nigeria from three sites in Kano in 2011 to 113 environmental sites spread across 29 states and the capital.

With 16 states affected by vaccine-derived poliovirus cases between January to October 2019, how did Nigeria get into this position? Some of the determinants of transmission of circulating vaccine-derived polioviruses relate to the very low essential immunisation coverage in 2016 when intensive oral polio vaccination campaigns were taking place. At the time of the oral polio vaccine "switch," 77% of children in Nigeria were unimmunised for essential vaccines, with rates as low as 3% for the third dose of Pentavalent vaccine in Sokoto in 2016. During 2018, in the initial vaccine-derived poliovirus outbreak states, a new birth cohort swelled the numbers of vulnerable children further.

In June 2017, the essential immunisation levels were declared a national emergency. A National Routine Immunisation Emergency Coordinating Centre was established.
Gavi is investing in long-term strategies to

strengthen essential immunisation and primary health care, but also in surveillance system strengthening as a priority in the context of Gavi transition.

The objective of the Coordinating Centre is to: improve detection, responsiveness and the resolution of the gaps in essential immunisation; strengthen leadership and accountability; enhance coordination; increase data visibility, use and quality at all levels. Then, most importantly, the aim is to increase fixed and outreach services for immunisation, especially in the very low performing states.

Another fundamental factor in polio causation is the pattern of nomadic movements across Nigeria. A vaccine-derived poliovirus from Jigawa State spread across national and international borders, most likely via nomads. Traditionally, there is movement of this community during the rainy season. Nomads start trekking back from southern Nigeria, to the north then into Niger, Chad and Cameroon. The Nigeria government's polio team has established a National Nomadic Working Group to try to track the situation and enhance essential immunisation and oral polio vaccine rounds within the migrant and nomadic populations.

IMB Evaluation

The IMB recognises that, despite the very good progress, and political unity, Nigeria still faces a number of important challenges. In particular:

Insecurity: This is still limiting access to eligible children for vaccination, especially in Borno State. However, insecurity is a rising problem in other parts of the country where armed robbery, kidnapping and communal clashes are occurring.

Suboptimal essential immunisation performance: Low population immunity, due to sub-optimal essential immunisation performance is still problematic.

Global shortage of inactivated polio vaccine (IPV): This is holding back the intensification of essential immunisation in polio high-risk areas.

Delay in laboratory analysis: This often hinders a timely response to outbreaks.

Variable campaign quality: There are still concerns about campaign quality. During one of the vaccination rounds in July 2019, the entire Emergency Operations Centre (EOC) had to move to the State of Kwara to ensure that the challenges regarding quality and achieving high performance were addressed. This yielded a positive result and after the visit results improved. However, the office cannot move every time a local campaign fails an independent quality check: complacency on this cannot be afforded and more needs to be done to ensure quality.

Maintaining political momentum: There is strong political will now in Nigeria for polio eradication and essential immunisation strengthening. We see that from the President, we see it from many Governors. The challenge will be to sustain it at a time when the Polio Programme in the country is on a successful trajectory for extinguishing wild poliovirus, but yet will face tremendous challenges with vaccine-derived poliovirus.

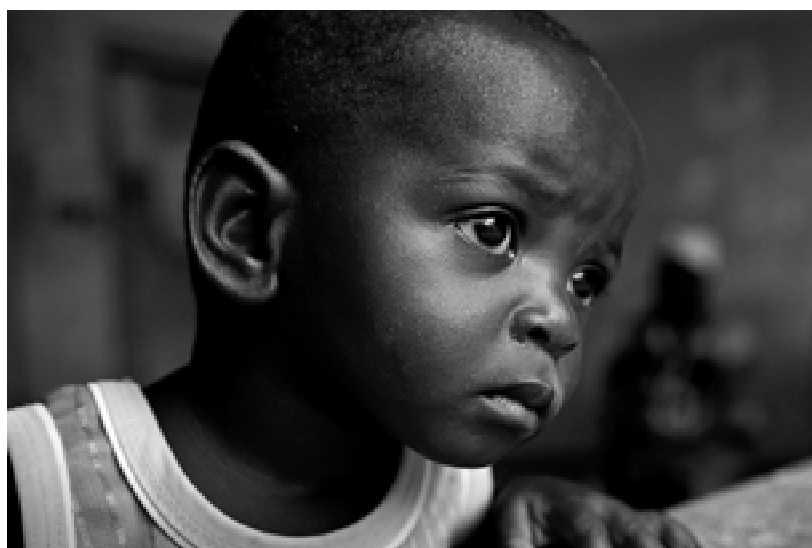
The IMB is surprised that the performance in bringing the vaccine-derived poliovirus outbreaks under control has not been more successful, given the capacity that the country has put in place and the success with wild poliovirus. Why the lack of success in ending the numerous outbreaks of vaccine-derived poliovirus? The multiple outbreaks of vaccine-derived poliovirus, of course, are happening against the backdrop of a very longstanding poor essential immunisation system.

Also, there is a risk that, after several years of not having polio campaigns, some people in Nigeria will start to forget what it means to conduct a very, very good campaign. Yet, no one should talk about a polio-free Nigeria without addressing the problem of the vaccine-derived polio cases in the country.

Two years ago, the IMB advised the Nigeria Polio Programme to focus on resilience. How, as it was heading towards a winning trajectory, would it put in place those systems that would allow it to withstand the surprises that pop up? The serious vaccine-derived poliovirus outbreak is an example of Nigeria's Polio Programme not yet having the required level of resilience measures in place.

The Emergency Operations Centre has as crucial role in further strengthening resilience to create a no surprises culture in the Nigeria Polio Programme.

This must be a top priority for the Nigeria government, especially through: better quality campaigns, transformational change in essential immunisation coverage, constructing modern environmental sanitation systems, securing the right level of funding.



The IMB is concerned that the right budgetary levels and funding flows should be in place in Nigeria. The IMB understands that funds are no longer in the Ministry of Health budget, but picked up from the sector-wide vote, which sounded to the IMB like a "discretionary" budget. The Nigerian delegation to the IMB meeting gave reassurances in this regard.

The 2020 budget is being constructed now. The budget line, is a "service wide vote," and not really just discretionary. Under the government's arrangements, when funds are located for specific reasons in the service wide vote, then the targeted area receives it. The Health Minister reassured the IMB that, in 2019, there was no ambiguity. It is spent on polio.

Similarly, whilst it is good to know that more state governors are ensuring that their funding is in place for polio campaigns, and that the figure stands at just over 50%, this means that another half are apparently not contributing. With the risk of further seeding of vaccine-derived poliovirus, this is now a new phenomenon in Nigeria. Polio was a problem for the north, now it's a problem for the rest of the country too. This means that all governors need to take political accountability as well as ensure that the funding is there in their jurisdictions.

The Health Minister, the President and the national government have a crucial role in engaging governors to remain committed to polio eradication, essential immunisation strengthening, and dealing effectively with the outbreaks for the long haul. Keeping the political establishment engaged will be vital.

THE VACCINE-DERIVED POLIOVIRUS CRISIS

The "switch" of trivalent (poliovirus Types 1, 2 and 3) to bivalent (poliovirus Types 1 and 3) oral polio vaccine across 150 countries in 2016 was intended to solve a problem: to remove, from the oral polio vaccine, Type 2 poliovirus that had been eradicated in its wild form in 2015. Children would then be protected from exposure to the potentially paralysis-causing poliovirus in the trivalent oral vaccine.

Post-switch numbers not as predicted

It was accepted and expected that there would be some Type 2 vaccine-derived virus still circulating in the environment. Thus, some children would be infected as they were no longer being vaccinated against this poliovirus type. Modelling predictions estimated that there would be around four vaccine-derived poliovirus outbreaks in the first year after the "switch" declining to an estimated one outbreak at the four-year point.

Since 2017, there have been 52 recognised outbreaks of vaccine-derived poliovirus in 29 countries. Four of these were Type 1 poliovirus

but all the others have been Type 2 poliovirus (data as of 30 October 2019). There are several countries with multiple outbreaks and some international spread.

A newer phenomenon is that most countries affected by Type 2 vaccine-derived poliovirus outbreaks in 2019 have not used monovalent Type 2 oral polio vaccine: for example, Angola, and the Central African Republic. This means that Type 2 attenuated poliovirus used in the emergency batches of monovalent vaccine has spread outside the range of its immediate deployment in an outbreak zone. This is an extremely worrying development.

The outbreak budget has been raised from $27m this year to $90m. This increased funding needed for outbreaks has forced very hard choices in determining where the money is going to come from and who will pay. As these outbreaks continue, the Polio Programme faces obvious reputational risks about how it will finish the job. Also, communities that are already rejecting the oral polio vaccine because of fatigue will be asked to accept more intensive vaccine rounds. These are big problems.

Strategic and operational complexities

There are operational complexities in responding to these outbreaks, especially in countries that have been polio free. Many of these are places that do not respond very quickly or very well to anything. Many have been out of the "polio business" for some time. The GPEI has had great difficulty in getting those countries to respond rapidly and effectively to the outbreaks. Finally, when they do, the quality of vaccine rounds has been poor, meaning that they have to repeat and repeat campaigns. Large amounts of monovalent Type 2 oral polio vaccine are then in play exposing

the population (and surrounding non-outbreak areas) to greater risk of vaccine-derived paralytic polio, creating new outbreaks on the edge of even controlled outbreaks. This is a bad cycle.

The biggest lesson from the "switch" is surely that, despite the extensive advanced preparations, the places with the lowest immunity were the weakest links in the chain. The IMB's Red List comes to mind. This is how the emergencies are now playing out. With tens of millions of children born since the "switch," widespread essential poor immunisation rates, and slow and ineffective outbreak management, a coast-to-coast outbreak of vaccine-induced paralytic polio across Africa is no longer a nightmare. It could easily be reality.

At its October 2019 meeting, the IMB heard further bad news on vaccine supply and logistics. There is a shortage of monovalent Type 2 oral polio vaccine when matched against the unforeseen number of outbreaks. There is pressure not just from the expanding epidemic coming out of Nigeria and going west, but also the newly emergent vaccine-derived polioviruses that are surging in numbers never seen before. Vaccine resources to deal with particular outbreaks are not unlimited. Choices for the rest of 2019 will be on the basis of global prioritisation and need. Countries cannot operate independently of this serious constraint.

A new vaccine to the rescue?

The first goal of the Polio Endgame Strategy 2019-2023, only approved by the World Health Assembly in May 2019, includes the requirement to: "Stop all circulating vaccine-derived poliovirus (cVDPV) outbreaks within 120 days of detection and eliminate the risk of emergence of future VDPVs." The Strategy is already failing badly on the goal of reducing, and ultimately eliminating, vaccine-derived polioviruses.

The current strategic position of the GPEI, as explained to the IMB's October 2019 meeting, is to recognise that there are more and more paralytic Type 2 poliovirus cases being generated through the use of monovalent oral polio vaccine in outbreaks. The aim is to move as rapidly as possible to a novel Type 2 oral polio vaccine that will not lead to vaccine-derived polio cases. The new vaccine is one that has been genetically modified with the intention that it will not revert and cause paralysis. It is envisaged that this would essentially be safe. Two such novel live attenuated monovalent (Serotype 2) oral polio vaccines have been in clinical trials involving adults, toddlers and infants.

One of the candidate novel vaccines will be rapidly brought forward. Another couple of months is needed to get full clinical data and then two more months to manufacture enough to be useful. A key step is to launch the new vaccine under an "emergency use" listing, which is, prior to a prequalification licensure. With concentrated effort it is hoped to have as many as 100 million doses available by June 2020, and then at least 40 million doses a month thereafter.

The Polio Programme is putting huge faith in the new monovalent Type 2 oral polio vaccine when it becomes available. Realistic, as well as worst-case scenario assumptions should be made now about what supplies will arrive. There should be a vaccine allocation plan. What is the process by which there can be an open and transparent review and acceptance of a new vaccine, particularly when there are potentially two variants to choose from? Who should make this choice? What is the level of confidence that it will not revert to become pathogenic in continued circulation in large numbers? How long will it circulate, and how does this compare with the original Type 2 oral polio vaccine? What are the implications for the development of new monovalent Types 1 and 3 oral polio vaccines and what is the status of development and plans for deployment? Where will new Type 2 oral polio vaccine be used? How much will be allocated to each location? Policy decisions are necessary about whether to use the first tranche out of production on a big scale. It could be used in a limited number of places where there are vaccine-derived polioviruses, or it could be split up and used in smaller amounts.

These planning and policy deliberations need to start now, be done transparently, and be based on the best available science. They need to be reviewed by independent, thoughtful scientists.

There should be public tracking of every step along the way of development and production of the new Type 2 oral polio vaccine.

A lot can go wrong with vaccine manufacturing. The IMB was concerned that the GPEI is rather starry-eyed about the process of selection, approval, manufacture, and distribution of this new vaccine, and does not seem to have an alternative plan.

In the meantime

Just as important, is what to do in the meantime with outbreaks of vaccine-derived poliovirus raging and risks of more of them happening. The GPEI plan here is to modify the operational outbreak response. The IMB was told that most of the work is focused on improvement using intensified oversight from the GPEI. This comprises: more rapid engagement and field presence in outbreak countries; expanded outbreak response capacity at global and regional levels; removing financial bottlenecks, including pre-financing vaccine rounds; creating outbreak standard operating procedures; and formulating emergency protocols for authority delegation to outbreak coordinators.

These steps are essentially aimed at making the wheels move faster and getting rapid responses in countries that are having vaccine-derived poliovirus Type 2 outbreaks. An Africa Regional Response team is being planned. It would have staffing from the Polio Partners, and go into affected countries immediately an outbreak started to help establish effective activities on the ground. There are other modifications to procedures for the outbreak response being implemented, including optimising the size of the vaccine campaign and changes to surveillance methods to facilitate early detection of outbreaks. First and foremost, much more needs to be understood about the epidemiology of Type 2 vaccine-derived poliovirus, and quickly. What is necessary for outbreaks to be extinguished most effectively, and, is this possible without infecting surrounding areas?

The need for critical thinking

In the early days of the IMB, the attitude of the GPEI leadership towards the cases of vaccine-derived poliovirus cases was relaxed. It was seen as a second order problem to be mopped up once the world was rid of the wild poliovirus. The debate came to a head again, mainly at the time of the "switch" but also during discussions about certification. In 2016, some stakeholders were saying: "How could you credibly say that polio had been interrupted if you still had a lot of vaccine-derived viruses or any vaccine-derived viruses?" They were dismissed as unhelpful Cassandras, spoiling what was a very good story of a glorious march towards a polio-free Africa and all the celebrations surrounding that.

The present situation has changed the terms of the whole polio narrative. There is no doubt that these two polioviruses, wild and vaccine-derived, should be viewed as having parity of menace.

This has a bearing on the global certification of polio. The Global Certification Commission's position had been that it would certify on a sequential basis, when for each wild poliovirus they had robust evidence of eradication.

The Commission was clearly less comfortable with their position on continuing circulation of vaccine-derived viruses: debating whether to "certify" them or whether to "confirm their absence."

The challenge now for the Commission is that if these are transmissible viruses causing outbreaks for more than a year, crossing borders, and paralysing children, does it now have to actually certify them against the same criteria that are used for wild polioviruses? The Commission will be meeting soon to consider this matter. It would be important to also take into consideration the views of African Member States on this issue.

The next major policy decision for the GPEI is when to withdraw all oral polio vaccine. There are parts of the world where oral polio vaccine does not need to be used now because they already have effective, high quality inactivated polio vaccine (IPV) programmes in place. In these places, the concern would be far more about the initiation of circulating vaccine-derived viruses than anything else.

For instance, should Pakistan and Afghanistan move to using monovalent Type 1 oral polio vaccine because there is no Type 3 poliovirus left? They are currently vaccinating against an eradicated virus.

There will be a point in those two countries where population immunity against Type 3 poliovirus is higher than it will ever be. From then on, where transmission starts to be interrupted, immunity to Type 3 poliovirus will go down. Coverage will fall after transmission is interrupted.

Should the Polio Programme be planning now for every opportunity to get rid of the use of oral vaccine where there is no need to be using it? If this is delayed, the world will simply be back in the same situation it found itself in with Type 2 poliovirus. So, there is a need to be bold and at least start planning how this will be done rather than waiting until after certification to then think about getting rid of oral polio vaccines.

There is a need for the most critical thinkers to come together, to challenge the status quo and to ask: “Should we be doing something very different?”

DATA INSIGHTS

Disorganisation, dysfunction and denial of access: Programme realities in Afghanistan

A random selection of comments from files of acute flaccid paralysis (AFP) cases in 2019

1. No proper searching for under 5 year old children
2. Weak social mobilisation activities
3. Mother said team did not visit their house for last 9 months: three young children also unvaccinated
4. Anti-government elements interfered and denied permission to record missed children
5. Poor supervision and monitoring of teams
6. Grandfather refused vaccine; uncle is a social mobiliser
7. Child from nomad family missed because of poor quality campaign
8. Rumour amongst local inhabitants against vaccination
9. Inaccessible due to banning of campaigns
10. Negotiation with communities and Shura but no results

Source: IMB analysis of GPEI raw data

DYSFUNCTIONAL TEAMWORK

ALIENATED AND MISTRUSTFUL COMMUNITIES

SUB-OPTIMAL TECHNICAL PERFORMANCE

ABSENCE OF POLITICAL UNITY

78% OF POLIO CASES IN PAKISTAN BETWEEN 2012 AND 2019 DID NOT RECEIVE ORAL POLIO VACCINE FROM ROUTINE IMMUNISATION PROGRAMMES

Up to 25 October 2019
Source: IMB analysis of GPEI raw data

Polio infected Union Councils in Pakistan in 2019: Too many surprises

55 Union councils with polio cases in 2019*

0 2019 affected Union Councils with cases going back to 2015

*Up to 25 October 2019
Source: IMB analysis derived from GPEI raw data

Essential immunisation coverage for three doses of Pentavalent vaccine

AFGHANISTAN	18% [1]
PAKISTAN	75% [2]
NIGERIA	57% [3]

Sources:
1. *Afghanistan National Expanded Programme on Immunisation 2018*
2. *Pakistan Demographic Health Survey 2018*
3. *WHO and UNICEF Joint Reporting Form on Immunisation 2018*

Pakistan: examples of operational delivery in polio vaccine rounds

NATIONALLY, JUNE 2019	No team visit or team missed child accounted for 11% of missed children
SUBNATIONALLY, JULY 2019	No team visit or team missed child accounted for 46% of missed children
SUBNATIONALLY, AUGUST 2019	Vaccinated but not fingermarked was the reason for 60% of missed children

Source: IMB analysis of GPEI raw data

Pakistan: examples of operational delivery in polio vaccine rounds

	BANGLADESH	PAKISTAN
DTP3 coverage 1 year old	98%	75%
Human development index rank	136	150
Neonatal mortality	17.12	41.95
Literacy	73%	58%
Total health spending %GDP	2.365	2.753
Population size (millions)	161	212
Polio status	POLIO-FREE SINCE 2006	Endemic

Source: Various global and national databases. Latest estimates.

Pakistan: examples of operational delivery in polio vaccine rounds

FEB	242,854
MAR	449,756
APR	5,819,383
JUN	9,999,227
JUL	5,819,383
AUG	4,911,116
SEP	4,195,995

Source: GPEI raw data

First language of families with a child diagnosed with polio in Pakistan in the period 2012-2019

LANGUAGE	PERCENTAGE
Pashto	89%
Punjabi	3%
Sindhi	3%
Siraiki	2%
Balochi	1%
Bravi	1%
Urdu	<1%
Hindko	<1%
Other	<1%
Total	*100%*

Up to 25 October 2019
One case excluded because of missing data
Source: IMB analysis derived from GPEI raw data

Failure of resilience: IMB 2016 Red List of Polio Vulnerable Countries

Burundi
Cameroon
Central African Republic
Chad
Comoros
Côte d'Ivoire
Democratic Republic of The Congo
Djibouti
Equatorial Guinea
Algeria
Ethiopia
Gabon
Guinea
Guinea-Bissau
Haiti
Indonesia
Iraq
Kenya
Kiribati
Liberia
Madagascar
Mozambique
Myanmar
Niger
Nigeria
Papua New Guinea
Somalia
South Sudan
Syria
Timor-Leste
Ukraine
Vanuatu

40%

INFECTED WITH VACCINE-DERIVED POLIOVIRUS

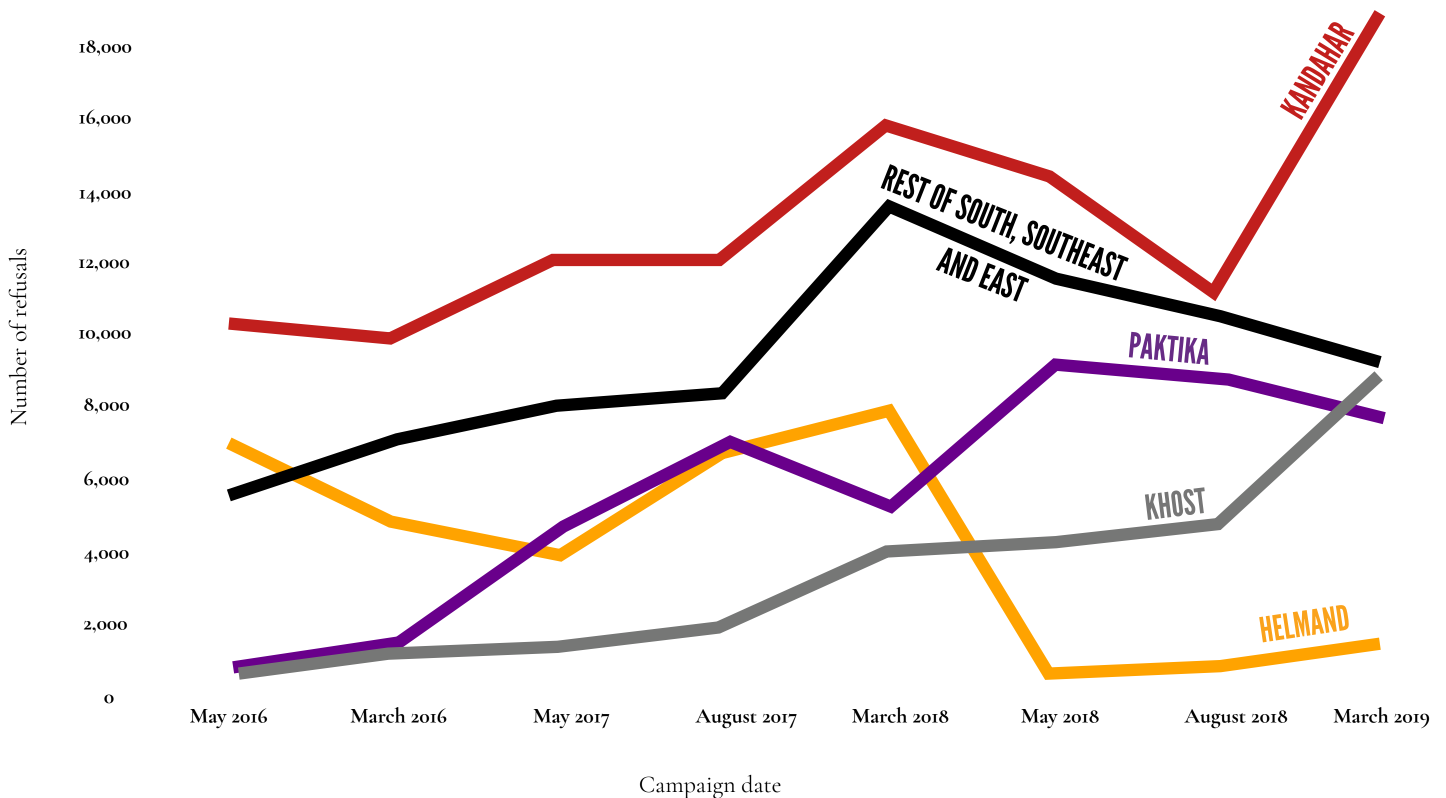
Up to 25 October 2019
Source: Polio will not end Everywhere until Everywhere ends it - 13th Report of the Independent Monitoring Board, August 2016.

Quality of last three polio vaccine rounds in Pakistan

	JUNE	JULY	AUGUST
Balochistan	FAIL	FAIL	*no round*
Islamabad	FAIL	FAIL	*no round*
KP	FAIL	FAIL	*no round*
Punjab	FAIL	*no round*	FAIL
Sindh	FAIL	FAIL	*no round*

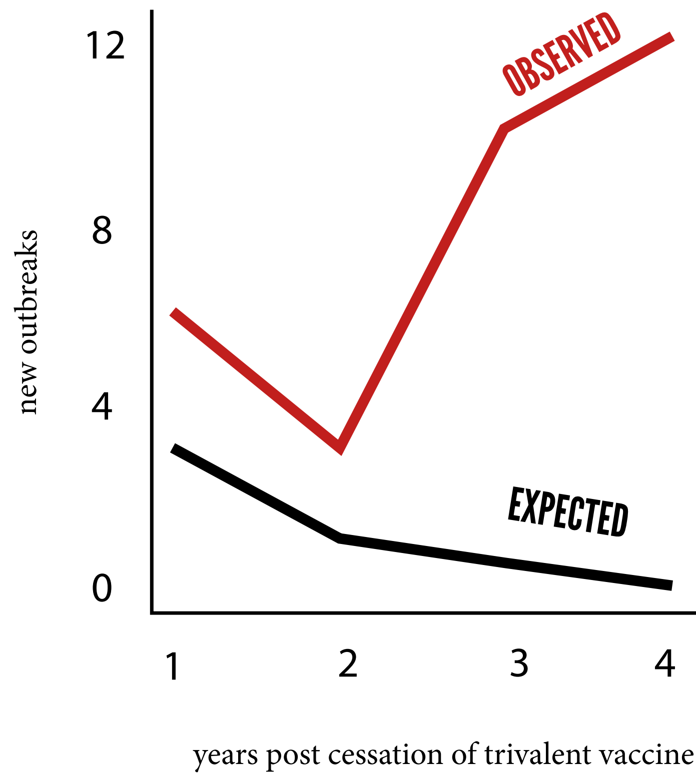
Source: GPEI raw data

Hard polio vaccine refusals (i.e. after post-campaign work) in Afghanistan



Source: GPEI raw data

Expected and observed vaccine-derived poliovirus outbreaks



Source: GPEI presentations

REJECTION OF THE POLIO VACCINE:

A MULTIFACETED PROBLEM WITH DEEP ROOTS

In the last decade, the oral polio vaccine has moved from its initial humanitarian space to a political space. In this journey it has suffered huge reputational damage. This is especially so currently in Pakistan. It is resented and hated by the communities needing it most. It is mistrusted and suspected of actively causing harm. It is seen as a hostile creature of the West. Its true purpose is not understood against a background of 10 and 20 knocks on the door compared to the nurturing warmth and comfort of other vaccines. It is at times a political football. It is at other times a political lever to gain attention and action on an important cause.

The more visibility and controversy that polio and its vaccine attracts, the further and more entrenched it gets from its humanitarian origins.

The more this happens the less effective it becomes as a disease eradication tool.

A DEEP SENSE OF ALIENATION

One thread emerges from all the individual community level voices the IMB has heard in Pakistan: a sense of deprivation and of disenfranchisement from rights and duties owed by the State to its citizens. The concept of citizenship may itself be in doubt. The anger and breakdown of the relationship between communities and their government leads to a bleak sense of disempowerment. This cannot easily be put right.

Acknowledging this sense of alienation, in conjunction with the deep practical challenges of simple survival in contested contexts, is crucial to understanding how and why people behave the way they do; and it is necessary to establishing how an extensive, internationally backed polio vaccination campaign fits into that world and designs its policies and programmes to align with it.

In its 16th report, the IMB recognised that the communities most at risk of polio were largely those with limited access to fresh water, poor sanitation, the absence of public service infrastructure (including no proper health care provision). These were also the communities most likely to be hostile to the oral polio vaccine when it was offered. The IMB said at the time: "Refusal of the polio vaccine is not a mere gesture, it's a distillation of the anger that communities feel when polio workers knock on their doors over and over again, in the absence of other governmental services."

According to the United Nations estimates, Pakistan has the worst neonatal mortality rate in the world. Afghanistan has the fifth worst rate. Behind these statistics are a range of causes that span availability of water, sanitation, healthcare, nutrition, education and many other factors. However, they do illustrate the depth of deprivation afflicting many communities in these two polio endemic countries.

The 16th IMB report recommended that these wider development needs were urgently addressed. This was a recommendation aimed at transformative, rather than incremental, change since the Polio Programme had previously not seen it as core business to address this underlying polio-generating weakness. The purpose of so doing is not only to increase communities' acceptance of the work of the Polio Programme but it is also a moral imperative. A by-product could also be to reduce the transmissibility of the poliovirus; there is a reason that large numbers of doses of polio vaccine are needed: it is because of the poor quality sanitation and the frequency of concurrent infections.

It became clear nearly a decade ago, in parts of India, where there were high rates of enteric infections, that multiple rounds of high quality campaigns were needed to interrupt transmission. As many as 15-20 doses of oral polio vaccine are required in such circumstances because of the high background rate of enteric infections. The Polio Programme has given scant attention to water and sanitation interventions, with the notable and instructive exception of the 107-block initiative in India, which was pivotal in reducing community resistance.

At the Polio Oversight Board that considered the IMB commissioned endemic country field visit report, it was agreed that such action was needed. The new Executive Director of UNICEF immediately pledged funding.

Implementation has begun and the IMB reviewed progress at its meeting in October 2019.

In Afghanistan, in the first four months of 2019, 34 mobile health teams have served 28 polio high-risk districts and treated more than 46,000 sick children and over 4,000 pregnant women. Community-led sanitation and hygiene promotion interventions have reached nearly 38,000 people, and 15,000 people have access to safe drinking water. There have also been schemes to upgrade drains and a package of services for severe malnutrition that has been delivered to 43,000 under-fives.

Implementation in Pakistan has focused on two places: Union Council 4 Gujro in Gadap Town, Karachi and Shaheen Muslim Town in Peshawar. In both, an emergency response unit has been established for communication purposes. A range of practical measures and improved infrastructure is now in place including: 13 functional health facilities that are providing essential nutrition services, refurbishment of 11 communal water schemes is underway, nearly 48,000 feet of pipes for

drinking water have been replaced and the new system is providing for 1500 families, new drainage measures are also being worked on. Funding to address this whole programme of work is not being drawn from core GPEI budgets, and so is not monitored through the usual mechanisms to track the Polio Programme's money. To date the UNICEF Executive Director has made available $5 million centrally and UNICEF country offices have also used some of their own resources to help. Other partners, notably the Bill and Melinda Gates Foundation and Rotary International have also contributed extra money, expertise, support staff and materials.

It could be transformational for the programme to provide early improvements for every polio-reservoir community: for example, $50,000 for WASH (WASH is the collective term for Water, Sanitation and Hygiene, a development programme led by UNICEF). Then, long-term, national policy and infrastructure could be mobilised to support WASH improvements, as was done in the 107-block initiative in India.

This would provide both an ethical and pragmatic way forward. At best, it would save lives, but it would surely also demonstrate to communities that their governments, and the world, care more about them than solely viewing them as potential polio-spreaders.

Pending these transformative and regenerative measures arriving in communities, immediate action can be taken in the short-term making public health supplies (e.g., soap, chlorine, vitamin A, deworming treatments) available with every polio vaccine campaign in areas with on-going transmission. Experience in other countries shows that this can create a very beneficial empathic connection between polio workers and communities. Equally important is to develop and provide an affordable package of basic and highly cost-effective interventions to prevent and manage locally prevalent medical conditions that communities in high-risk polio areas suffer from.

A positive and encouraging start has been made towards implementing this potentially transformative recommendation of the 16th IMB report. Although progress has been fragmented and very slow, some multiply-deprived communities in Afghanistan and Pakistan are already benefitting from new or improved water and sanitation infrastructure and better access to maternal and child health services. This is just a start and it is absolutely vital that a Polio Programme-wide strategic plan for scaling-up and sustaining this work is formulated. Without proper governance, coordination and leadership arrangements in place there are serious risks to this embryonic and exciting venture.

In particular, the IMB's review of the situation has highlighted the following important points:

Scale: The programme needs to "think big." It must match the depth and breadth of the response to the size of the problems; for example, 700,000 people live in Gujro, one of the targeted Union Councils, and its population is very heterogeneous. It is a big place. So far, the intervention does not match this population size. These questions of scale are a core issue and will arise again and again.

Sustainability: There must be complete transparency about the risks to the continuity of successful projects. This is less problematic

where definitive construction and engineering projects have created improvements to water and sanitation. Where recurrent funding is needed for public health services, though, the devastating effect of giving services to communities and then removing them when funding tails off is a real and present danger.

National and local governance platforms: Experience shows that there are multiple policy and funding inputs to the process of community regeneration and development at country level. They have to be channelled in a way that is consistent with national policy and strategy but also with local priorities in a fair and consistent way. It is not easy to achieve this clarity but an explicit formal governance structure at national or federal level aligned with a counterpart at local level is essential.

Needs assessment, consultation and priorities: It is essential that action and investment are led by a rigorous and fair assessment of need. Priorities for action and investment must be based on evidence of the depth and nature of that need and not by political machinations. It is very important that the views of local communities and their leaders should also be built into these processes and carry weight in the decision-making.

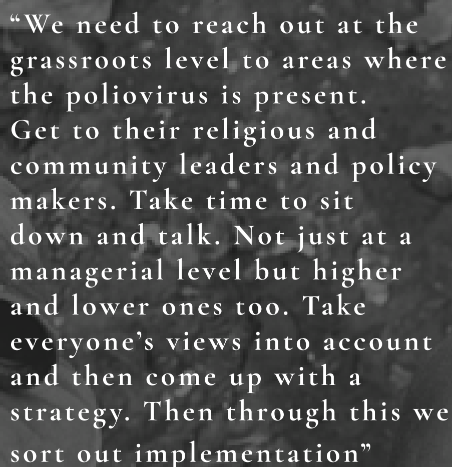
Avoiding funding bottlenecks: Availability of funding is vital for this programme of work. Equally it is essential that allocation systems get money quickly and efficiently to places where it has been agreed that it will be spent. The bureaucracy of funding allocation can easily inhibit progress and erode morale.

Broadening the development base: The Polio Programme should not be going it alone. It is important that it engages a wide range of potential partners to broaden the base of involvement in the social, environmental and economic regeneration of the most deprived communities in the polio endemic countries.

BOYCOTTING THE POLIO VACCINE TO ACHIEVE A GOAL

In 2019, a new phenomenon is emerging: that of citizens boycotting the polio vaccination campaign to gain government and international attention for on-going disputes or governance gaps that define their lives.

A valley of north-western Pakistan's remote Orakzai district is the final resting place of Badshah Mir Anwar Shah Syed Mian, a 17th century Sufi saint who brought Shia Islam to this part of the Safaid Koh mountains. Mian has



a large following in Orakzai and neighbouring Kurram district, where more than 750,000 people venerate him.

Mian is indirectly the reason that more than 41,000 families have boycotted Pakistan's polio vaccination campaign this year, resulting in more than 16,000 children not being given the vaccine for the disease in this area. Twenty years ago, Mian's followers say, the government sealed the shrine because of a spike in violence in the region. Now, however, peace has largely returned to Orakzai and Kurram, and Mian's followers – or *mureeds* – say they have been lobbying the government to reopen the shrine, or at least allow them to renovate it, for years, but to no avail.

Desperate, they came up with a new tactic: boycotting the polio vaccination campaign. "There is international focus, so we wanted pressure to be exerted onto the government," says their spokesperson: "We are trying to get the government to act on this issue properly. Internationally, because the focus is on polio people will talk about it."

Asked if the boycott stemmed from any suspicion of the vaccine itself – which has been a dominant driver of vaccine refusals in Pakistan– the spokesperson was adamant this was not the case: "We are not [boycotting] because we have any negative feeling towards polio drops," he said. "We know it is good for our children, and we have been giving it to them for years."

The boycott in Kurram and Orakzai is illustrative of a new phenomenon that has emerged as a barrier against polio, adding to the refusals based on suspicion of the vaccine.

There are other examples.

"I have given polio drops by my own hands to those who have refused them after following up with them," said the head of a major traders association in the north-western town of Bannu.

In 2019, the district has reported at least 23 of the country's 72 cases of polio. If the adjoining districts of North Waziristan, Dera Ismail Khan

and Lakki Marwat are included that number goes up to 39.

Earlier this year, it was announced that every member of the Bannu Chamber of Commerce and Industry would be boycotting the polio vaccination drive, resulting in thousands of refusals. The organisation demanded that the newly elected Pakistan government withdraw a slew of new taxes that were, they say, crippling their ability to survive.

The spokesman for the Chamber of Commerce and Industry said it was the only way to get the government to listen.

He also said that he has no doubts about the effectiveness of the vaccine, and is also aware of the dangers of creating a gap in the herd immunity that full coverage of the vaccine offers, but that he and members of his community felt they had no choice.

SOCIAL MEDIA: THE AMPLIFICATION OF CONSPIRACY THEORIES

On 22nd April 2019, an angry mob broke through the gates of a basic health unit in a rural area just outside Peshawar, the main city in Pakistan's northwest. Shouting, they set fires and broke down walls.

Why did this happen? They believed that the administration of polio vaccine at a nearby school had caused children to fall unconscious. The rumour, which began at a secondary school in the Soorzai neighbourhood, about 10km away, spread like wildfire. Soon, people were sharing videos on WhatsApp, Facebook and Twitter, and within hours the mob had formed, angrily demanding treatment for their children. "There was a man there who was a main character in the propaganda, who then told children to fall unconscious, and took video of them, and then that video went viral," said a local news report, "Then people said the medicine was expired and that [vaccinators] were trying to kill children."

The panic caused parents whose children had been vaccinated earlier in the day to rush them to hospitals, too, with more than 3,000 in all brought to Peshawar's main Lady Reading Hospital only to be discharged as suffering no new ailments beyond, possibly, panic attacks.

The hysteria caused the suspension of the polio vaccination campaign in the entire

region, while the government planned a new communication and outreach strategy simultaneously reaching out to websites like Facebook, Twitter and YouTube to have the videos spreading propaganda about the vaccine taken down.

In all, Pakistan, a country of 212 million people, has 159 million cell phone service subscribers. As for citizens of many countries, Pakistanis' mobile phones are their gateways to not just communication, but also mobile payment, entertainment, education and other services.

While Internet penetration is lower than cellphone use, the country still has at least 68 million broadband subscribers, including those who subscribe to Internet services on their mobile phones. Among social media platforms, social network Facebook leads in Pakistan, with a reach of roughly 33 million users. Twitter has a comparatively smaller share of the market, with 1.26 million users. Messaging service WhatsApp – owned by Facebook – is ubiquitous among cellphone users who use data or Wi-Fi services. These are all prime sources of information and influence.

Most of the conspiracy theories related to the polio vaccine in Pakistan, a major driver of refusals across the country, centre on unspecified "Western" goals to sterilise Muslims or otherwise harm or oppress them.

Why do the conspiracy theories develop?

Areas where polio is prevalent in Pakistan tend to lie outside the economic and development mainstream, mostly in rural or peri-urban areas of Khyber Pakhtunkhwa and Balochistan provinces, where development indicators are low and governance is weak.

Even when cases occur in larger cities, such as Peshawar or the southern metropolis of Karachi, they are invariably in low-income working class neighbourhoods that are largely unregulated and where government services have little footprint.

These disenfranchised and dispossessed people are primed to be sceptical of government claims. It is important not to conflate refusal to take the polio vaccine with support for violence, but the underlying principle of *why* people believe conspiracies holds true. At their heart, these theories draw not from a deep belief in their subject matter, but in the power asymmetries that define the lives of many Pakistanis.

For polio vaccination programme designers, the political and ideological beliefs of the subject population may not factor into how their systems are designed, but this campaign does not occur in a value-free environment.

Rather than dismissing the conspiracy theories as misguided and false (they are), it is more important to understand why people believe them in the first place.

Most people in poorer areas are not in a position, and do not feel the need, to independently verify each piece of information they come across. Instead, most rely for verification on the source from which they received the information in the first place. Thus, false beliefs can spread and gain currency within an "echo chamber."
Social networks like Facebook and Twitter, in turn, provide the veneer of familiarity that allows malicious (or simply ignorant) actors to propagate false beliefs on a much wider

scale than ever possible before. Those beliefs, propagated on the Internet, easily make the jump to word-of-mouth, spreading into offline networks through people who may have online access, giving the theories unprecedented reach.

ALL POLIO IS LOCAL: DEEP DIVISIONS ON THE DOORSTEP

Into the space between the individual and the Polio Programme can creep a more specific form of alienation: mistrust.

The big picture influences described in the previous sections ultimately distil down into an individual encounter between a parent and a vaccinator. Does that parent, that family, accept or reject the vaccine? If they accept, will they accept again with the same conviction that it is good for their child on perhaps 10 future occasions? This is a relationship based on trust. Trust in the motives and integrity of the vaccinators; trust in the Polio Programme; trust in the government.

What determines whether polio is eradicated depends on the cumulative effect of a hundreds of thousands of small decisions, interactions, acts of faith and bonds of trust in villages, in dense urban communities, at border crossings, in encampments, in markets and in mosques. They, in turn, depend on the actions of the Polio Programme's staff operating in this highly granular context. Mostly, it is a one-to-one encounter, straightforward or sometimes complex and stressful for the parent as well as the vaccinator. Then again, it can be five-to-one. The one is the mother; the five are supervisors, social mobilisers and influencers putting on pressure to gain acceptance of the polio vaccine drops. The quotes cited in this report show just how difficult situations can get.

When there are consistent messages of a lack of trust in government, the Polio Programme, and the polio vaccine itself, coming from communities, it makes matters so much worse if the Polio Programme on the ground, through its operating practices, sustains this feeling of mistrust.

A single bruising encounter does not help when a future relationship with repeated vaccination visits is vital.

In IMB contacts with the frontline, this theme of mishandling of parents who are trying to refuse the vaccine is raised over and over again. We were told of one "standard operating

procedure" whereby the system for converting in polio involves several knocks. The vaccinator knocks first, then the monitoring parties, a supervisor, an influencer, a district coordinator, and then the oversight committee. We were told that too often what happens is that a very "soft" refusal quickly turns into a very hard-core refusal, especially in the Pashtun culture.

This is why the IMB has repeatedly emphasized that "technical" and the "people" elements of the Polio Programme must be integrated in all operational level work. Yet the IMB was told in its 17th meeting and by multiple frontline sources that team meetings do not go into discussion of social or communication barriers. They spend a lot of time discussing surveillance indicators and campaign performance. At best, they will review refusal trends, but not unpack such issues.

ACCESS BANS

Although not thought of as "refusal" *per se*, the way in which very large numbers of children and families are denied the opportunity to have the polio vaccine is through geographically based bans.

For years, the Anti-government elements in the endemic countries- for example, northern Nigeria, North Waziristan in Pakistan, and various parts of Afghanistan- have banned the use of polio vaccines in areas controlled by them. This is often to achieve a political objective, simple defiance, or to create a society with different rules and norms. Sometimes conservative clerics and religious leaders, even if they are not sympathetic to the use of violence, can support such actions, thereby influencing community attitudes in a period of inaccessibility.

Currently, Afghanistan is the geopolitical axis most seriously affecting the prospects for the Polio Programme. In Afghanistan, as in some other polio-affected areas, access for polio drops is a powerful bargaining chip in a wider political context.

In years gone by the GPEI has very skilfully handled negotiations with Anti-government elements. It is not clear whether the current situation has been caused by lack of strategic planning, clumsy handling of local stand-offs, carelessness in selecting the right negotiating teams, or that the political context is now more complex and insurmountable.

This is not the first time Afghanistan has experienced bans, but it is the first time that it has experienced it on such a large scale and for such a long time. In the past, bans were mostly due to disagreements over programmatic areas, where Anti-government elements wanted more say in the selection of front-line workers; or the Polio Programme was used as a bargaining chip for putting forward demands like additional health care; or due to misconceptions about the safety of the vaccine. Mostly these were resolved through local dialogue. There was seldom much impact on surveillance. It was perceived as a low-profile activity. Mostly it was the health and political commissioners of the Anti-government elements that were engaged in such dialogues.

In May 2018, the nature of the ban completely changed. The major reason was security concerns from Anti-government elements, imposed by the military commanders in the southern provinces. They were increasingly worried about the increase in aerial strikes as well as targeted drone attacks.

These large-scale access bans, together with the extent of territory controlled by Anti-government elements, have seriously affected the prospects of polio eradication in Afghanistan. In northern Nigeria, Anti-government elements have restricted activities and imposed different norms and values that do not acknowledge the benefits of eliminating polio.

All these activities reinforce how far the polio campaign has moved from the humanitarian space that is its rightful home and how difficult eradication will be as long as it stays this way.

THE NEED FOR A NEW APPROACH TO COMMUNICATION

Improving communication – in particular, starting with sensitive listening – should be at the heart of the Polio Programme at every level. There should be no meeting of any kind where it does not play an important part.

The communication needs of the Polio Programme are multi-faceted and fast moving. They include:

- Equipping tens of thousands of frontline staff with the information and skills to handle difficult conversations on the doorstep;
- Creating culturally and contextually matched programmes to influence vaccine refusal attitudes in dozens of different places;
- Overcome humiliating, harmful and coercive efforts by the programme to force vaccination and establish dialogues with communities to establish trust;

- Listening to, understanding and tracking the nature of community perceptions towards the programme and documenting and sharing solutions towards resolution and demand generation;
- Tracking the movements of high-risk mobile populations and understanding their motivations and patterns;
- Establishing a credible and effective strategy to address the impact of the vaccine-derived polio emergency and the actions being planned to deal with it;
- Working with community leaders across all endemic and high-risk areas to gain their support;
- Giving local decision-makers real time data on the communities that they are working in;
- Designing an overarching polio narrative that is internally consistent but matched to different purposes (advocacy, resource mobilisation, staff empowerment, community empathy).

These are formidable challenges, and require a sophisticated and well thought through approach especially when many of the messages are conflicting.

For example, an "almost there" narrative that marks polio eradication as special, desirable and inspiring might be the right one for global advocacy and fundraising but a contrasting narrative that normalises polio vaccine within overall beneficial packages of public health services and lowers its individual profile might be more successful with antagonistic communities. The current positive, one-track narrative can seem disingenuous to many people, especially those that the Polio Programme desperately needs to reach.

Overall, storytelling has been vastly underused. All stories have ups and downs, filled with dramas and tensions. Polio stories from the frontline are not exempt from that. Stories of struggle, of hardship, and of difficulty can often be more relatable and generate an audience than a narrative of "just a few more rounds" and "we're almost there".

Similarly, the launch and messaging for the forthcoming new oral polio vaccine that is free of the risk of mutating virus strains must deal with the realisation that the need for change is the property of the current vaccine that generates polio cases.

The IMB feels that the rest of the world has moved past the Polio Programme in communication strategy. On the human-centred side, others have made innovations and investments in this area. For example, some of the Polio Partners apparently have whole teams for behavioural insights, aimed at vaccine demand generation on the essential immunisation side.

When the IMB asked about bringing this modern expertise and thinking to polio eradication work, we were told that these are different units that: "Do not touch polio, since it comes from a different funding stream to immunisation."

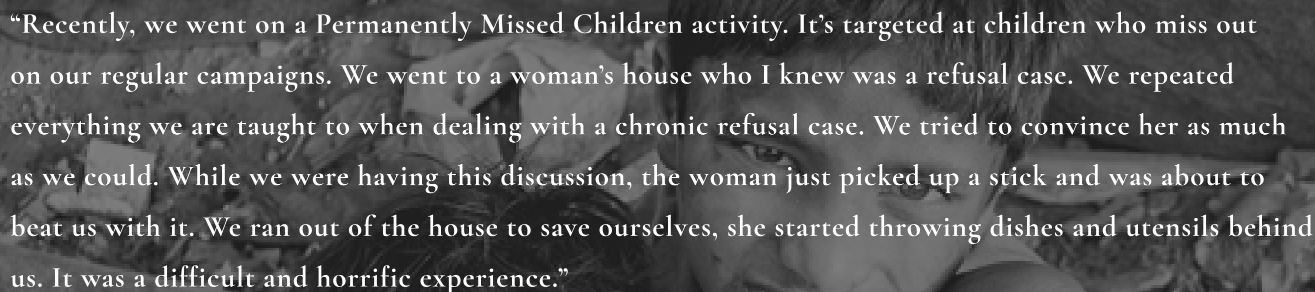
CONCLUSIONS

The year 2019 is a good time to be a poliovirus as it continues to do a great job in exploiting human frailties in order to survive and thrive.

The political, social, environmental, and managerial influences that are preventing polio eradication in the three remaining polio endemic countries are deep and profound.

The Polio Programme is at a critical point where the eradication initiative is seriously under threat. That threat is greater than it has faced for a long time. It comes on three fronts. The first is the failure to control polio transmission in Pakistan. The second is the huge and unprecedented immunity gap that has opened up in Afghanistan. The third is the change in behaviour of vaccine-derived polioviruses that are now spreading, remaining in transmission, and paralyzing. Biologically, they are hard to separate from wild polioviruses.

It cannot be business as usual.



"Recently, we went on a Permanently Missed Children activity. It's targeted at children who miss out on our regular campaigns. We went to a woman's house who I knew was a refusal case. We repeated everything we are taught to when dealing with a chronic refusal case. We tried to convince her as much as we could. While we were having this discussion, the woman just picked up a stick and was about to beat us with it. We ran out of the house to save ourselves, she started throwing dishes and utensils behind us. It was a difficult and horrific experience."

Polio Area Supervisor

Politicisation of polio

There is one conclusion that casts a massive shadow over the entire Polio Programme. Polio cannot be eradicated with a vaccine that is politically and socially toxic. The polio vaccine has left its humanitarian space of origin in Pakistan and parts of the other countries affected by the disease.

In Pakistan, the country where the poliovirus is resurgent, despite the federal government's stated commitment, there has been serious controversy about the Polio Programme, and, perhaps for the first time, there is a risk that polio eradication may come to be seen as a partisan, rather than national issue.

It is very important that clarity of leadership and purpose is in place with a revitalised and re-energised restoration of control over the poliovirus by the end of the year. The Polio Programme in Pakistan - the country's government but also the GPEI leadership at global and regional level - need to raise their game and come up with better and more transformative solutions to the root causes of continued polio transmission.

Country ownership

If there is one thing that seasoned polio campaigners and observers agree on, it is that a country will not eradicate polio if it does not take "ownership" of the problem. This is the reason that India, languishing as an endemic country when the IMB began its work, took control, dealt decisive blows to the poliovirus and has kept it out. It was inspiring. It was like magic. Nigeria seems to be on the same path. Yet, the other two endemic countries are in the tired bureaucratic rut of being pushed from the outside. India and now Nigeria are examples of countries that moved on to a higher plane and declared that polio is above politics.

Alienated mistrustful communities

Political divisions are not the only barrier facing the Pakistan Polio Programme. Many communities in the country, over time, have become alienated from their government. They live without proper sanitary infrastructure, with few health services, or other public services, and little else to call their own. They

are angry, despairing and frightened for the future of their children. Rejecting the polio vaccine is the only weapon they have to protest and send a message to their government.

In response, mothers in such communities can find themselves surrounded on their doorstep by four or five people pressurising them to let their child have the vaccine. This is only for the whole process to be repeated a few weeks later. Too many knocks on the door lead to frustration, anger and more deeply entrenched rejection of the vaccine. Wider forces, misinformation, scare stories, and manipulation are also shaping individuals' attitudes to the vaccine, many promulgated through social media wildfires. In other areas, boycotts of the polio vaccine are set up to achieve a political or community goal, ironically often by people who have no objection to the vaccine.

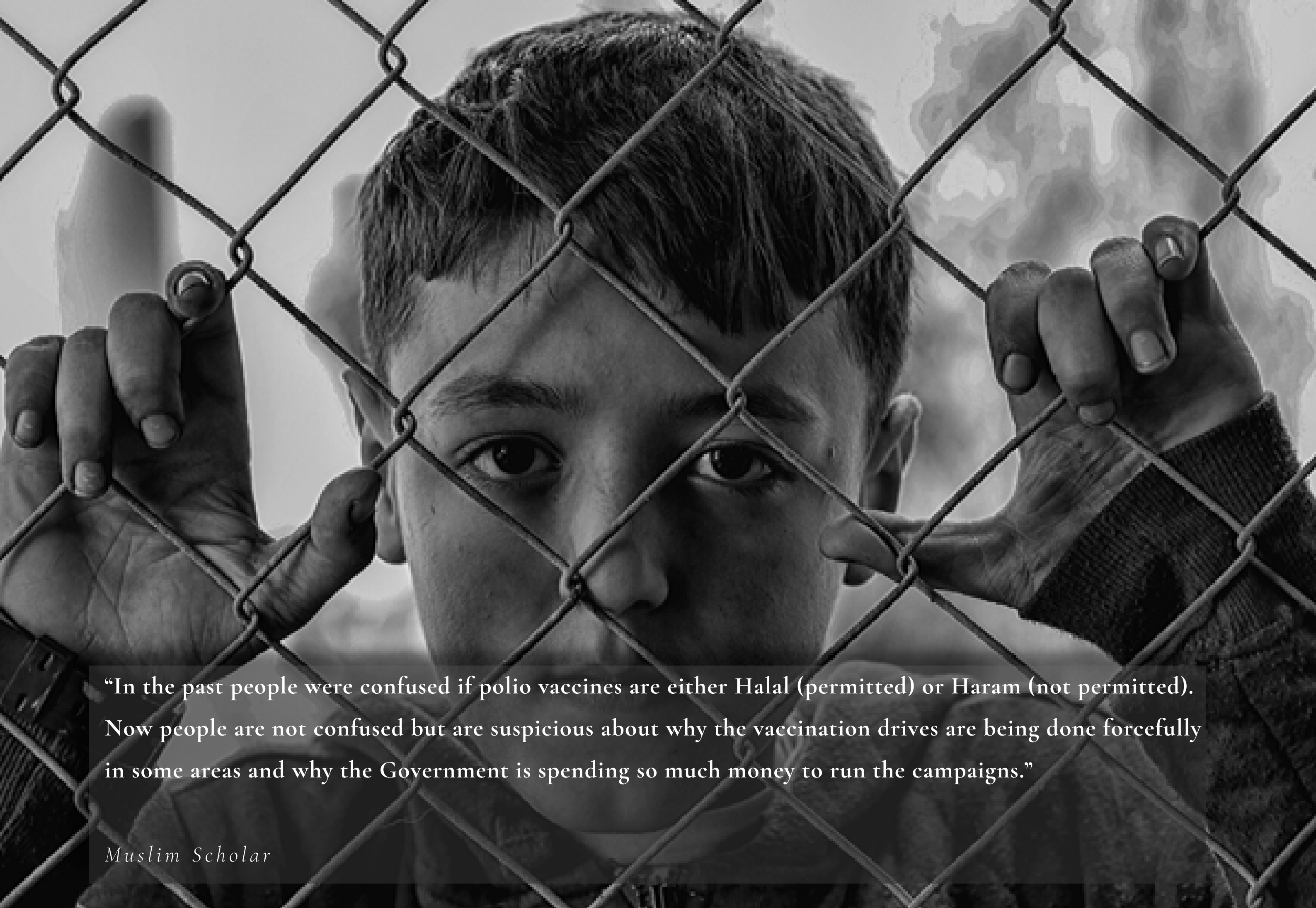
There is little "pull" from communities for the polio vaccine. Polio is not necessarily the worst thing that can happen to them. Many bad things do happen to them and their neighbours. In contrast, many other services are seen as meeting felt needs and, more than this, reactions to them are driven by the strong primary parental instincts of nurturing and protecting a child. Polio vaccine is not seen like this. It is too often perceived as an isolated strand of healthcare, imposed, and coming from strangers in a foreign land. More can be done to use modern methods of analysis, such as behavioural insight research, to better understand motivation and behaviour to help polio eradication. Behavioural insight expertise is being used in other areas of the polio partner agencies but apparently not shared.

Meeting communities' wider needs

These challenges can be addressed but not by a torrent of fragmented interventions. Policies must have absolute strategic coherence if they are to succeed. The Polio Programme in Pakistan – the government teams and the GPEI partners – must dive deeper than they have been doing.

Firstly, they must create a high standard of coordinated action to regenerate the poorest communities with infrastructure, services and development support. The new Pakistan government's social programme can play a big part in this, but only if it delivers tangible and value benefit very quickly.

Secondly, wherever possible, they must embed the oral polio vaccine within a broader range of public health services, especially water and sanitation services and essential immunisation. Extensive experience shows that, when polio vaccine is nested within other packages of services that communities do value, it loses its "spikiness" and is better accepted.



Supporters and influencers

Thirdly, a cadre of community leaders must become the Polio Programme's champions, potentially including parents of affected children. The Polio Programme cannot really effectively "create" trust. Trust is earned by finding the people at the community level that families trust. Enrolling those people as part of the Polio Programme, as emissaries or as intermediaries for it can be transformational.

Nigeria did a brilliant job of this by enrolling and mobilising more than 100,000 traditional leaders across the north. They were actually the frontline face of polio in the sense that between campaigns, in mosque announcements and in local conversations people who were trusted from the community said: "This is right for our community." So everything did not depend on the isolated vaccinator making an effective transaction at the doorstep. There was a hinterland of trust to support the more technical delivery activities.

Nigeria has found that, whilst it does not insulate the vaccine from hostility and the impact of vile rumours about safety, it does mean that it moves back to neutrality more quickly once they have been dealt with. Developing a role for community and tribal leaders, on the bold scale necessary, must be a priority for the Polio Programmes in Pakistan and Afghanistan. It is another vital way to depoliticise the vaccine and build trust with communities.

Frontline staff as problem solvers

Then there is the question of day-to-day performance of the Polio Programme. It has failed consistently to achieve peak performance. Patchy and suboptimal performance will

not work and is the reason that Pakistan and Afghanistan have never been clear of poliovirus in all three reservoirs of the virus at once. Achieving programmatic excellence consistently is a problem for all three countries. In Nigeria, although the apparent interruption of transmission of the wild poliovirus for three years is a wonderful milestone, poor performance on essential immunisation has created a wider international threat of polio from the vaccine-derived poliovirus outbreaks in 15 of the country's states.

Local programmatic performance is heavily dependent on the quality of the frontline polio teams and how they are led, guided and supported. The frontline of the Polio Programme in Pakistan and Afghanistan is not a happy place to be. Despite the huge global organisational structure spanning Geneva, New York City, Atlanta, Evanston, Seattle, and the regional centres in between, in Africa and the Middle East, ultimately all polio is local.

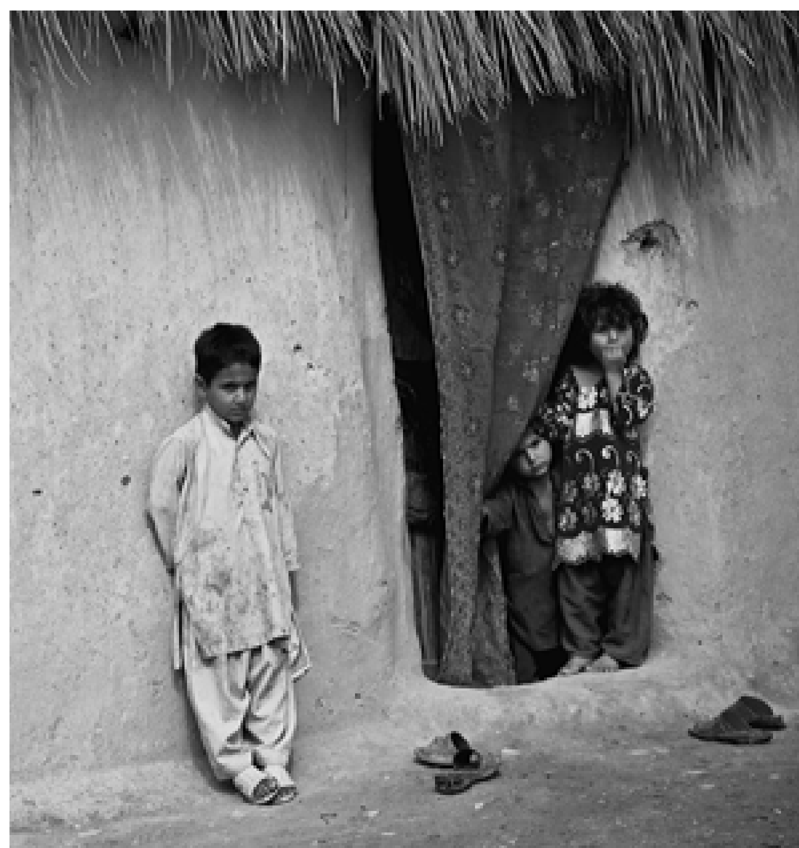
Frontline staff look to their leaders to empower and support them to find and solve local problems, they look for encouragement and praise for work done well, they hope that they will be given time and space to pool their local knowledge in meeting rooms lit by the flame of creativity.

The GPEI has been operating for more than 30 years. Its unified governance structure has allowed it to make exceptional progress in the quest to eliminate polio. When an organisation, of any kind, has existed for that length of time it is extraordinarily difficult for it to make fundamental shifts in its management and leadership style.

The leadership style must change, though, so that it empowers the frontline and fosters local initiative and innovation. It will require courage. But with something as complex as the polio eradication programme, with so many moving parts, all needing to move in the right direction, an implicit assumption of trying to control everything from a global level, or even a national level, is doomed to failure. Of course, there has to be accountability. There also has to be very good data to pinpoint levels of performance.

The best solutions will be found in the frontline. They always will be found in the frontline. In many other fields, that is what happens, but there must be well-trained, well-motivated, skilled people. In turn, they must have the best data flowing to them for decision-making, not be distracted by constantly having to look upwards to supply data for briefings and meetings at global level.

Currently, inspirational, empowering leadership is thin on the ground and, as a result, innovative solution-finders close to the



frontline are a scarce human commodity. Beyond the politics, the day-to-day operational functioning of the Polio Programme must operate as one team.

Some reflect that WHO and UNICEF staff are becoming almost stigmatised by their own agencies for being "too polio." Polio staff are talked about as specialists who will become "obsolete" once polio is gone, not heroes of the historic achievement. How does this fit into all the previous warm words and about finding incentives and strategies to put the best people in the hardest places? Where is the innovative human resources strategy to develop and support frontline staff?

The engine of polio eradication is the Emergency Operations Centre. Working well, it should be finding every possible way to understand and listen to communities and designing ways to overcome the barriers to progress. This is happening in Nigeria but not to the same extent in Pakistan and Afghanistan where complexities in governance, leadership, coordination, communication and decision-making are weakening the potential of the concept of an Emergency Operations Centre.

Another enduring problem holding back peak performance in the Polio Programme is the failure to mainstream, within local operational discussions, social and behavioural data. It can point to key problems that lie behind why the poliovirus is persisting in a locality. The epidemiology and the human factors analytical viewpoints must be part of the same diagnostic process not separate silos.

Ultimately, the current prospect for interrupting wild poliovirus transmission globally is only as strong as its weakest locus of programmatic performance.

The need for a modern communication strategy

Given all these needs for change, it is also clear that the GPEI does not have a modern, comprehensive and multi-modal communications strategy in place to underpin the Polio Programme.

Essential immunisation now essential

Throughout the lifetime of the IMB (and before), the Polio Programme, delivering oral vaccine as a single strand intervention given repeatedly, largely in house-to-house visits, and the essential immunisation of children, delivered in a more integrated package, have been in a tense relationship. The Polio Programme, traditionally, has not seen much mileage in working hand-in-hand with essential immunisation teams. The Polio Programme was aware of the criticism of its vertical programme approach. However, it had taken the view that it should push on and get the eradication job done since this had worked nearly everywhere, and even high levels of essential immunisation coverage do not necessarily lead to polio eradication. The plan was to then hand over polio assets for the benefit of essential immunisation. As the numbers of polio cases fell lower, it locked into campaign mode, with vertical fervour.

This almost ideological rigidity of approach has become a major problem for the Polio Programme and is threatening the very prospect of polio eradication. This is for two reasons. First, the scale and scope of the vaccine-derived polio disaster has, as one of its root causes, low levels of essential immunisation. Second, the only hope of getting many polio-

affected communities to accept the oral polio vaccine at all is to embed them within essential immunisation packages. The combination of widespread hostility and suspicion towards the oral polio vaccine plus the number of knocks on the door required to achieve herd immunity mean that a purist vertical programme, based on heavy persuasion, can no longer work everywhere.

The need for a more flexible, fine-tuned approach to local vaccine strategy is made more difficult by the fact that some polio teams and essential immunisation teams barely talk to each other.

New thinking on vaccine derived poliovirus

Vaccine-derived poliovirus has traditionally been seen by the GPEI as a less important, mopping-up task to be accomplished once the wild poliovirus has been conquered. It is no longer credible to regard vaccine-derived polioviruses as a second order problem to be dealt with after the wild poliovirus tents have been taken down. The predictions about what would happen after the trivalent oral polio vaccine was withdrawn worldwide in 2016 have proved to be wrong. The scale and extent of spread of vaccine-derived poliovirus has brought a new dimension to the eradication strategy.

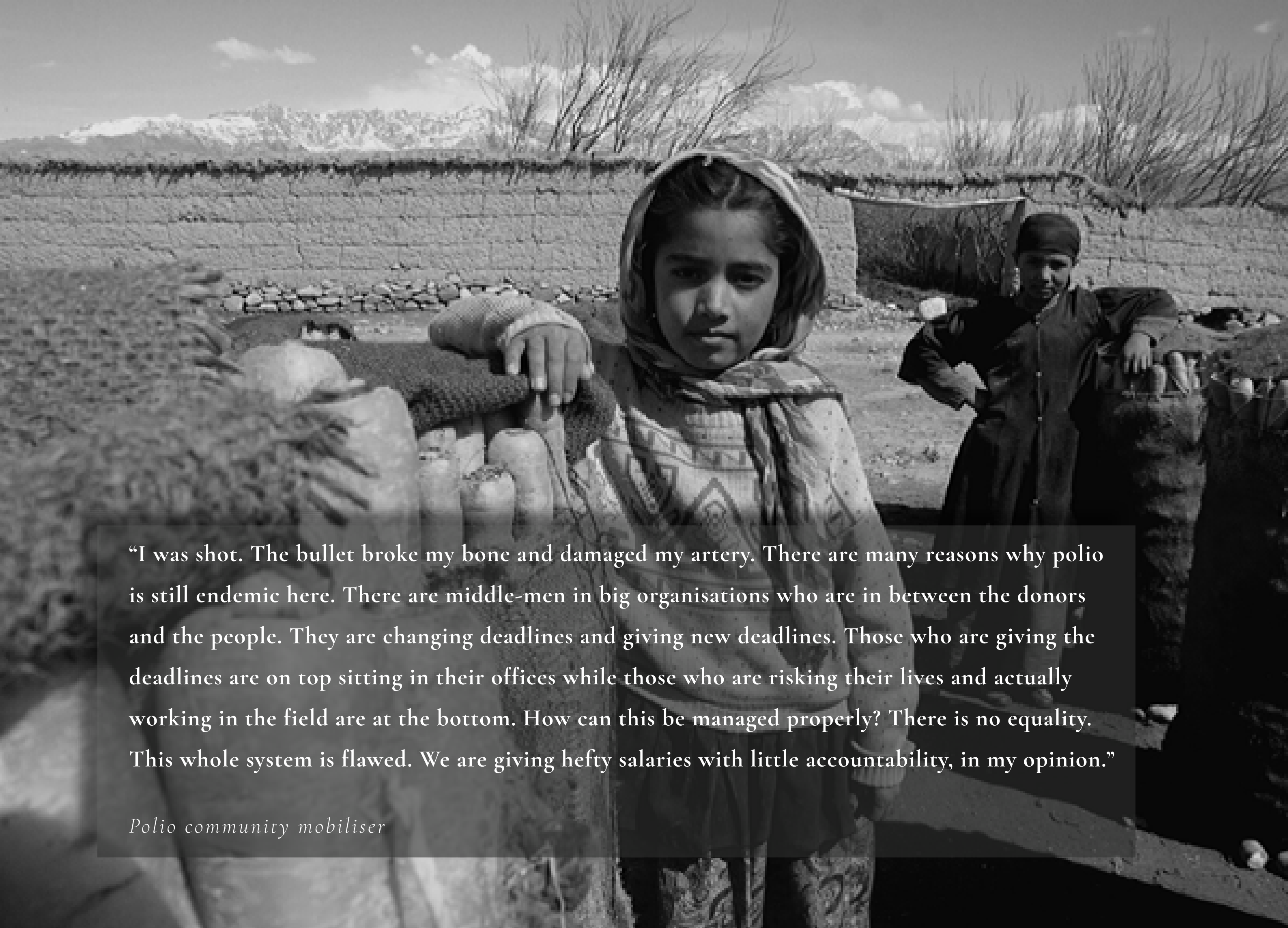
The two forms of poliovirus must be seen as brothers-in-arms mounting a sustained attack on the prospects of a polio-free world, and meantime paralysing unacceptable numbers of children.

The GPEI's plan to definitively solve this problem is to deploy a new monovalent Type 2 oral polio vaccine that has been engineered with the intent that it be free of the risk of causing paralytic polio. This vaccine is just leaving clinical trials and is predicted to be available for large-scale deployment within nine months. There is no alternative plan to stop polio cases caused by the current oral polio vaccines if something goes wrong. Until then, additional measures are being introduced to improve outbreak management and shore up the immunity levels in vulnerable countries as well as pushing forward with improved essential immunisation levels. Such short-term approaches may not have a big impact given the rapid rising tide of vaccine-derived viruses.

The vaccine-derived polio crisis needs to be looked at in the round and fresh thinking brought to the table.

Afghanistan: access and programme performance

The gravity of the situation in Afghanistan cannot be overstated. It shows how in a complex, and unpredictable political environment things can deteriorate rapidly. The succession of bans and access restriction created, at one stage this summer, a population of 10 million children without adequate polio immunity. Great ingenuity and innovation, in negotiation strategies and operational delivery, is needed now to make inroads into this yawning immunity chasm. Nor, should the Afghanistan Polio Programme or the GPEI believe that the problems are all to do with access. The performance and management of the Polio Programme in this country have been mediocre for a long time. Internal relationships are complex and there are undercurrents of



> "I was shot. The bullet broke my bone and damaged my artery. There are many reasons why polio is still endemic here. There are middle-men in big organisations who are in between the donors and the people. They are changing deadlines and giving new deadlines. Those who are giving the deadlines are on top sitting in their offices while those who are risking their lives and actually working in the field are at the bottom. How can this be managed properly? There is no equality. This whole system is flawed. We are giving hefty salaries with little accountability, in my opinion."
>
> *Polio community mobiliser*

dysfunction that are clouding the opportunity for a step change improvement in performance. Afghans have not traditionally been against the oral polio vaccine but times are changing and the hardening community attitudes across the border in Pakistan cannot be ignored. Moreover, Kandahar City festers with refusals.

Still possible but...

The IMB still believes that poliovirus circulation, both wild and vaccine-derived, can be interrupted, but the events of the last year mean that the journey will be considerably longer than it could have been.

The Polio Programme is where it is because of a range of factors including: a deficit in wide-ranging strategic thinking; a failure to take seriously enough warnings and dissenting voices; a top heavy management style; a rigidity of mind-set and approach to programme delivery; an old-fashioned approach to communications; an inability to match intractable and deeper causes of programmatic failure with high quality, transformative solutions; poor management of politics; lack of imagination in the use of data; disinterest in quality improvement methods of proven value; and, above all, a failure to listen to, understand or work together with poor and underserved communities.

The IMB calls on the GPEI and the governments of the polio affected countries to rise to the challenges that this report has identified because it is clear that unless they do the dream of a polio-free world will turn out to be a mirage.

RECOMMENDED ACTION

Those running the Polio Programme at global, country, regional and district level should give careful attention to the analysis in this report; it has identified extensive and deep-rooted factors that are enabling the poliovirus to remain confidently in circulation.

Addressing these problems purely by urging greater effort in existing work streams, or superficial changes of direction, will not work. This will guarantee the poliovirus a long lifespan.

The IMB's recommendations are intended as a starting point for the Polio Programme, at global, regional, country and local level. The IMB calls upon them all to rise to a standard of excellence in performance in every area of their responsibilities. Extensive and searching discussions will be required to fully scope and understand what creates the need for each recommendation.

1. The Pakistan Government should urgently achieve political neutrality and cross party support for polio vaccination with a unified strategy and team across the country and better synergy between federal and provincial levels, politically and operationally.

2. The Government of Pakistan should conduct a nationally coordinated and managed listening exercise with polio-affected communities in the country as well as engaging local expertise, community leaders, religious scholars, and the medical and health community to build community trust through innovative and more effective strategies.

3. The Pakistan Polio Programme should design and implement a culturally sensitive initiative to gain the Pashtun population's support for polio vaccination given the IMB's analysis that 89% of all polio cases over the last eight years have occurred in this population.

4. The Polio Programmes in Pakistan and Afghanistan should build a cadre of community, religious and tribal leaders to become champions of polio vaccination, building trust within communities. Nigeria's Polio Programme has successfully operated in this way.

5. All three countries, working with partners and donors, should initiate further intensive action to increase essential immunisation coverage, currently at levels that threaten the entire eradication effort; this is particularly urgent in Nigeria (see also recommendation 16).

6. The GPEI should work with the Polio Programmes in Pakistan and Afghanistan urgently to produce a graphically appealing core set of indicators, less than 10 (including at least one each on support to front-line vaccinators, essential immunisation, communication effectiveness, and provision of WASH and basic health interventions to individuals and communities) of accurate, timely, and catalytic indicators of programmatic performance. Staff at all levels should be trained to more accurately collect and more effectively respond to these data.

7. The Governments of Pakistan and Afghanistan should work with all partners (led by UNICEF) to progress new development initiatives to address lack of sanitary and basic health infrastructure and services in poor communities. A comprehensive programme should be formalised, expanded and speeded-up taking account of the essential criteria for its design described in this IMB report. There should be public commitments to, and objective reporting of, progress against defined goals to achieve coverage of all communities which have remained endemic for polio.

8. Pending the measures in recommendation 7 arriving in communities, immediate action should be taken to make at

least one public health intervention (e.g. soap, chlorine, vitamin A, deworming treatments) available with every polio vaccine campaign in areas with on-going transmission.

9. At every opportunity, the Polio Programme should design local programmes that embed and integrate oral polio vaccine within wider packages of services so as to promote its "normalisation" and reduce its isolated profile; this should be a delivery philosophy, not an occasional action.

10. The GPEI should create a new and comprehensive communication strategy to address the criticisms, and grasp the opportunities, spelled out in this IMB report.

11. The GPEI should convene a high-level meeting involving experts and key committee chairs to review policy and strategy to eradicate vaccine-derived polio, taking account of concerns identified in this IMB report.

12. The GPEI, with country Polio Programmes, should establish a new supportive, empowering, problem-solving performance culture for the frontline; this management reform will be foundational to achieving peak performance in Pakistan and Afghanistan.

13. The GPEI should commission an independent company to poll a sample of frontline polio staff confidentially and on condition of anonymity. Their opinions should be sought on the operating culture, morale and practical difficulties of the Polio Programme on a rolling quarterly basis. The IMB would like to be consulted on the process.

14. The GPEI should review its strategy and tactics on access negotiations with Anti-government elements in Afghanistan, including identifying new international sources of effective facilitation.

15. The GPEI partner organisations that have teams using behavioural insights for other areas of work, especially essential immunisation should make that expertise available to help solve human-centred problems in relation to acceptance and demand for polio vaccine that are preventing eradication.

16. The Government of Nigeria should urgently review its approach to vaccine-derived poliovirus outbreaks, that is currently ineffective, and find solutions to transform the current situation. Specifically, it should also ensure that funding needs are reviewed and adequate budgets are being deployed. This should include securing contributions from state governors who are not currently making them, presumably in the belief that polio has been overcome in their jurisdictions. Further seeding of vaccine-derived poliovirus is now a different phenomenon in Nigeria; polio was a problem for the north, now it is a problem for the whole country. It is vital to safeguard the success on polio through budgetary commitments.

The IMB calls on the GPEI and the governments of the polio affected countries to rise to the challenges that this report has identified because it is clear that unless they do the dream of a polio-free world will turn out to be a mirage