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Pakistan

WHO PAKISTAN

POLIO ERADICATION INITIATIVE

REPORT 2024

ACKNOWLEDGMENT

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ACRONYMS

AFP	Acute flaccid paralysis
EPI	Expanded Programme on Immunization
ES	Environmental surveillance
EOAs	Extended outreach activities
FIPV	Fractional inactivated polio vaccine
FLWs	Frontline workers
GPEI	Global Polio Eradication Initiative
iVDPVs	Immunodeficiency-associated vaccine-derived polioviruses
HRMP	High-risk mobile populations
KP	Khyber Pakhtunkhwa
LQAS	Lot Quality Assurance Sampling
MMP	Migrant and mobile populations
NCC	National Certification Committee
NEAP	National Emergency Action Plan
NEOC	National Emergency Operations Center
NIDs	National immunization days
OBRs	Outbreak response
OPV	Oral polio vaccine
PCM	Post-campaign monitoring
PEI	Polio Eradication Initiative
PID	Primary Immunodeficiency Disorders
PTPs	Permanent transit posts
RI	Routine immunization
RRL	Regional Reference Lab
RuR	Reaching the Unreached
SIAs	Supplementary Immunization Activities
SNIDs	Subnational immunization days
STPs	Seasonal transit posts
TAG	Technical Advisory Group
UC	Union council
VRC	Voluntary Repatriation Centers
WPV1	Wild poliovirus type 1

FOREWORD

Today, wild polio survives in only two countries – Pakistan and Afghanistan. Despite challenges, combined surveillance and vaccination efforts have succeeded in protecting millions of children from a lifelong paralytic disease. Since 1994, the Pakistan Polio Eradication Programme, led by the Government with support from WHO, has reduced the number of polio cases by more than 99%. WHO is proud to partner with the Government of Pakistan to run together the last mile to end the global threat of polio, protecting future generations in Pakistan and across the world.

Throughout history, polio has been a much-feared disease, leaving children permanently disabled or even taking their lives. Thanks to mass vaccinations, national commitment, and the hard work of health frontliners, today, the world stands on the brink of polio eradication – an excellent example of what can be achieved when nations, governments, scientists, health practitioners, philanthropists, and citizens work together for the benefit of all.

However, challenges remain when it comes to accessing and providing vaccines to children in some of the most vulnerable communities. These gaps allow the virus to survive and spread. Interrupting polio transmission in Pakistan is critical to ending polio worldwide, and WHO will remain steadfast in its support to the Government to achieve a polio-free Pakistan.

In 2024, the government-led Pakistan Polio Eradication Programme demonstrated exceptional resilience in the face of a resurgence of wild poliovirus. As the Government of Pakistan revitalized polio eradication efforts under the direct oversight of His Excellency, Prime Minister Shehbaz Sharif, WHO remained a crucial partner. We mobilized over 14,000 WHO-associated personnel and over 412,000 vaccinators to immunize children. WHO also supported the expansion and maintenance of the largest and most sensitive poliovirus surveillance network in the world, with 12,500 acute flaccid paralysis reporting sites, 127 environmental surveillance sites, and 81 sites to screen and monitor patients with primary immunodeficiency disorders and detect poliovirus. WHO also partnered with the Polio Programme to increase routine immunization coverage through collaborative efforts with the Expanded Programme on Immunization.

I commend the hard work of thousands of vaccinators, WHO and partner staff, campaign assessors, security personnel, and government counterparts at the national, provincial, and district levels to reach over 45 million children with the vaccine despite complex challenges like poliovirus resurgence, insecurity, inconsistent access to children, misinformation, vaccine hesitancy, and population movement. Their services to ensure the well-being of millions of children are invaluable.

WHO will stand side by side with Pakistan and its partners to intensify the response and run together the last mile to end the global threat of polio. We will do it for our children and our grandchildren, because no child will be safe from polio until all children in the world are safe.

Dr Dapeng Luo

WHO Representative in Pakistan

WHO PAKISTAN POLIO RESPONSE 2024 AT A GLANCE

WHO Pakistan's robust polio workforce and supported structures:

14,000+
WHO-associated personnel supported polio eradication efforts.

412,000+
vaccinators mobilized for every national campaign.

12,500+
acute flaccid paralysis (AFP) reporting sites nationwide, 127 environmental surveillance points, and 81 sites for poliovirus surveillance in primary immunodeficiency patients – the largest and most sensitive poliovirus surveillance network globally.

45.6 M[1]
children under 5 vaccinated with the oral polio vaccine (average).

1 M+
children vaccinated with the injectable polio vaccine.

10
house-to-house oral polio vaccine campaigns conducted.

268.4 M
doses of oral polio vaccine administer in house-to-house drives.

74
polio cases confirmed from the reported AFP cases through testing at WHO-accredited Regional Reference Laboratory for Polio.

2,037
environmental surveillance samples collected and tested at WHO-accredited Regional Reference Laboratory for Polio.

934
acute flaccid paralysis (AFP) reporting sites added to the surveillance network.

22,216
AFP cases reported through robust surveillance.

628
environmental surveillance samples positive for poliovirus.

17,252[2]
individuals mobilized to independently assess campaign quality and coverage.

[1] *The same child is vaccinated multiple times, as the Polio Programme conducted multiple campaigns.*
[2] *The number can include repetition because an individual assessor can be deployed in more than one campaign.*

> *It's not easy for me to walk during polio campaigns due to my limited mobility, but I cannot miss the chance to bring hope and resilience to the children of Pakistan. I eagerly await the day when polio is completely eradicated, bringing a brighter future for our nation and the world.*

Ayesha Raza
Polio Survivor and Vaccinator, Lahore

EXECUTIVE SUMMARY

Since the launch of Pakistan's Polio Eradication Programme in 1994, polio cases have been reduced by over 99% through extensive polio vaccination campaigns and poliovirus surveillance, and the hard work of millions of vaccinators. However, to date, Pakistan and neighboring Afghanistan remain the only two countries where wild polio still survives, making it critical to intensify the response to end this persistent global threat to children across the planet. Pakistan, and the world, have an opportunity to deliver a polio-free world for future generations, but for that, we need to run together the last mile. No child will be safe until every child is safe.

In 2024, WHO continued to partner with the Government of Pakistan to lead one of the largest polio eradication efforts globally, protecting up to 45.6 million children under the age of five from paralytic polio through 10 house-to-house oral vaccination campaigns – three of them outbreak responses – and a targeted campaign that delivered the injectable polio vaccine to over 1 million children. In parallel, WHO supported the Polio Progamme in maintaining the largest and most sensitive poliovirus surveillance network in the world with over 12,500 acute flaccid paralysis (AFP) reporting sites nationwide, 127 environmental (wastewater) surveillance sites, and 81 sites to screen and monitor patients with primary immunodeficiency disorders and detect poliovirus. This network is supported by the WHO-accredited Regional Reference Laboratory for Polio at the National Institute of Health (NIH) in Islamabad, which has been declared the best in 146 laboratories across the world by experts of the Global Polio Eradication Initiative's Technical Advisory Group. This highly sensitive surveillance ensured the swift detection of poliovirus circulation, guiding decision-making on outbreak response campaigns and vaccination strategies.

Additionally, WHO supported the Government in enhancing polio and other routine vaccination coverages through several strategies that protected previously unreached and inaccessible children:

- An extensive transit vaccination strategy that immunized nearly 23 million individuals with polio drops, including adults who were vaccinated at international border crossings, to prevent the spread of poliovirus by travelers.
- Deployment of biker teams to reach nomadic children often missed in polio campaigns, as well as children in inaccessible areas with low vaccination rates, delivered oral and injectable polio vaccines to 636,000 children, and 645,000 doses of other routine vaccines – which help to increase immunity and protection against polio[3].
- Special vaccination initiatives that immunized over 800,000 children during the high-travel season of Ramadan and Eid, engaging parents to give polio drops to their children.
- Collaborative activities with the Expanded Programme on Immunization to identify and vaccinate zero-dose[4] children, building immunity and increasing vaccination rates.

[3] *Children protected with the injectable polio vaccine could be the same who received other routine doses.*
[4] *Zero-dose children refers to those who have not yet received even a single vaccine dose.*

Polio resurgence

Pakistan reported 74 polio cases in 2024 as the country faced a resurgence of wild poliovirus type 1 (WPV1). While the absence of detection of the endemic YB3C WPV1 genetic cluster was a considerable success, the spread of the YB3A WPV1 genetic cluster, which was reintroduced to Pakistan in 2023 through cross-border transmission, remained a challenge. The virus spread to 90 districts, reinfecting previously cleared core reservoirs in Karachi, Quetta and Peshawar, which then became engines of further transmission. The virus also circulated in endemic southern Khyber Pakhtunkhwa districts and even spread to historically low-risk remote districts of Balochistan.

With this drastic change in epidemiology, the Government of Pakistan revitalized polio eradication efforts with personal oversight from the Prime Minister and the appointment of new leadership for the Polio Programme for improved coordination among provinces. WHO supported the Polio Programme in finalizing its National Emergency Action Plan 2024-25 with a strategic "2-4-6 roadmap" to accelerate progress. Under this umbrella, the Programme underwent a two-month reset in July and August with a critical reevaluation of all areas of work, collaborative planning with the provinces and the development of district improvement plans. From September to December, three large-scale vaccination campaigns were held during a 4-month period to build a defense against virus spread. The roadmap's third phase began in January 2025. To complete the "2-4-6 Roadmap", the Programme has planned additional campaigns over a period of six months to raise immunity during the low poliovirus transmission season, while conducting targeted interventions in virus hideouts to advance towards the interruption of the transmission within 2025.

WHO also partnered with the Polio Programme to establish 934 additional acute flaccid paralysis (AFP) reporting sites – which contributed to increasing AFP reporting by 12% – and nine environmental surveillance sites in four more districts. Additionally, WHO-led Polio Programme teams conducted comprehensive epidemiological investigations to identify potential blind spots with undetected circulation and established 81 sites to screen and monitor patients with primary immunodeficiency disorders and detect poliovirus.

Challenges persisted throughout 2024, including missed children, security-related access issues, low vaccination coverages, and population movement. The situation was particularly challenging in southern Khyber Pakhtunkhwa's endemic districts, where campaigns were often staggered or implemented with alterations to the recommended 3+2-day campaign duration strategy. WHO supported the Polio Programme in reaching children in these areas through alternate vaccination strategies and worked with national and local authorities to ensure consistent access. These efforts yielded results in the second half of 2024, when all campaigns were harmonized throughout the country – i.e. held without any alterations to the planned dates.

With support from WHO, Pakistan is moving forward with full determination to end the global threat of polio and secure a healthier future for every child, leaving no one behind.

The following chapters outline the main activities and impact of WHO interventions in support of the Pakistan Polio Eradication Programme during 2024.

> *Polio vaccines work and have saved millions of lives. However, the resurgence of wild polio in Pakistan in 2024 was a stark reminder that our fight is not yet over. We need to intensify the response and run together the last mile to end the global threat of polio, in Pakistan and across the world. Despite challenges, WHO-led teams supporting the Polio Programme remained resilient to continue protecting millions of children from paralytic polio.*

Dr Zainul Abedin Khan
WHO Pakistan Polio Coordinator
July 2020-March 2025

CHAPTER 1: VACCINATION OPERATIONS

WHO continued to support the government-led Pakistan Polio Eradication Programme in 2024, mobilizing over 412,000 vaccinators to immunize 45.6 million children under five with the oral polio vaccine in 10 house-to-house campaigns and over 1 million children with the injectable vaccine in priority areas. In addition, over 23 million individuals, including adults at international border crossings, were vaccinated through a comprehensive transit vaccination strategy, while dedicated biker teams reached 636,000 children with oral and injectable polio vaccines and administered 645,000 doses of routine vaccines through collaborative activities with the Expanded Programme on Immunization, increasing vaccination coverage and protecting children's health.

As poliovirus spread remained intense, all 90 districts with positive detections were covered during three nationwide vaccination campaigns. Adhering to the Global Polio Eradication Initiative's guidelines, three requisite response rounds were completed in 68 of 90 infected districts with additional responses ongoing as needed. Of these, 24 districts had no further polio detections, indicating success in stopping virus spread.

Thanks to strengthened cross-border collaboration, two polio campaigns were synchronized with Afghanistan, while all campaigns post-June 2024 were harmonized throughout all territories in Pakistan, i.e. held during the same planned dates. Through increased outreach efforts, the number of missed children decreased from 1.48 million to 1.13 million. In parallel, children unreached in campaigns due to security issues was reduced from 0.7 to 0.3 million. To enhance vaccination, surveillance and inclusion in monitoring activities of mobile populations, WHO-led Programme teams conducted an extensive exercise that identified and mapped 1.8 million migrant and mobile populations who were covered in subsequent campaigns.

KEY DATA POINTS

10
house-to-house oral polio vaccine campaigns conducted.

45.6 M
children vaccinated on average with the oral polio vaccine in house-to-house campaigns.

1 M+
children vaccinated with the injectable polio vaccine during a targeted campaign in Karachi.

412,000
vaccinators mobilized in polio campaigns.

645,000
doses of injectable non-polio routine vaccines administered in hard-to-reach through biker teams.

636,000+
children in nomadic and hard-to-reach areas received oral and injectable polio vaccines through biker teams.

23 M+
individuals in transit vaccinated at border crossings, train stations, bus stands, checkpoints and public places like malls and parks.

268.4 M
doses of oral polio vaccine administer in house-to-house campaigns.

1.1. SUPPLEMENTARY IMMUNIZATION ACTIVITIES (SIAS)

As Pakistan faced a poliovirus resurgence that spread to 90 districts, WHO supported the Polio Programme in implementing 10 house-to-house Supplementary Immunization Activities, including three nationwide, four subnational and three outbreak response campaigns with varying vaccination targets, reaching an overall average of 45.6 million children under five with polio drops and keeping them safe from the threat of lifelong paralysis from polio.

In parallel, as wild poliovirus type 1 (WPV1) circulation was particularly high in Karachi, a strategic targeted vaccination campaign was implemented to immunize over 1 million children with the injectable polio vaccine – adding an immunity boost – in priority areas of Karachi, a poliovirus reservoir that drives transmission to other districts.

1.2. ALTERNATE VACCINATION STRATEGIES

House-to-house campaigns were supplemented with several strategies to support the Government in increasing polio and other routine vaccine coverages to stop poliovirus transmission. Over 23 million individuals were immunized with polio drops through a comprehensive transit vaccination strategy, while WHO also supported national authorities in leading the delivery of critical polio and other routine vaccines to underserved communities – such as nomadic, mobile and other unreached children – through dedicated biker teams, leveraging joint resources and expertise of the Polio Programme and the Expanded Programme on Immunization.

1.2.1. COMPREHENSIVE TRANSIT VACCINATION

Over 8.3 million children and adults were vaccinated with the oral polio vaccine by teams stationed year-round at permanent posts at international, interprovincial and interdistrict borders, international airports and railway stations. Travelers of all ages are vaccinated, in particular at crossings along the Pakistan-Afghanistan and Pakistan-Iran border, to prevent the international spread of wild poliovirus in line with the recommendations of the International Health Regulations Emergency Commission for Polio.

Additionally, 800 teams deployed at key locations such as bus stops and hospitals, particularly during labor or seasonal migration, administered the oral polio vaccine to 14 million children on the move to curb the spread of poliovirus from high-risk areas to polio-free districts. In addition, 800,000 children were also vaccinated at stalls set up during the high-travel season of Ramadan and the two Eids in public places like parks, malls and zoos to prevent the virus from moving with people. This special initiative engaged parents in the fight against polio by offering them the opportunity to vaccinate their children themselves at these vaccination stalls.

In parallel, as the repatriation of unregistered foreigners continued, vaccination teams at Voluntary Repatriation Centers established by the government and UN agencies immunized over 130,000 children to prevent cross-border spread of poliovirus.

1.2.2. BIKER STRATEGY: VACCINATION ON WHEELS

WHO supported the deployment of up to 91 biker teams under the Nomads Vaccination Initiative. These teams immunized 295,000 children with the oral polio vaccine, 95,000 children with the injectable polio vaccine, and 220,000 children with routine vaccines, reaching nomadic children within their settlements in 34 districts and ensuring coverage of 16,900 zero-dose children.

Similarly, 354 biker teams were deployed under the Search Team Outreach Plus Initiative in 26 districts with low routine immunization coverage, high numbers of zero-dose and under-vaccinated children, or lacking routine vaccinators. These bikers reached 140,000 children with polio drops, 106,000 children with injectable polio vaccines, and 425,000 children with routine doses, while ensuring coverage of 20,600 zero-dose children.

They [nomadic communities] want to protect their children from diseases too. We have received a lot of love from them. When we vaccinate their children, they are thankful and pray for us. It feels good that people like them and their children are also being taken care of.

Daniyal Sikandri
Nomads Vaccination Initiative
Team Member, Bannu

1.2.3. JOINT INTERVENTIONS WITH THE EXPANDED PROGRAMME ON IMMUNIZATION

The Polio Programme supported the Expanded Programme on Immunization (EPI) in the implementation of the third round of the "Reaching the Unreached" activity to provide polio and other routine immunization vaccines to children in 69 union councils of endemic southern Khyber Pakhtunkhwa districts with low routine immunization and polio coverages. The activity reached 233,831 children under five with the oral polio vaccine, 9,164 children with Penta-I, 9,336 children with Penta-III, 10,903 children with the injectable polio vaccine, and 12,802 with Measles Rubella-I. As part of this initiative, a total of 6,518 zero-dose children were vaccinated.

Polio teams also supported EPI in completing two "Extended Outreach Activities" in 43 high-risk union councils of Peshawar, providing BCG, Penta-I and Penta-III vaccines to 37,500 children who had not received the complete doses of their routine vaccination schedule.

During the EPI-led "Big Catch-Up" – aimed at reaching children who missed routine doses due to the COVID-19 pandemic or any other reason –, the Polio Programme provided support to EPI by strengthening microplanning, enhancing surveillance, and deploying trained workforce for vaccination campaigns. The Programme also facilitated capacity-building, community engagement, and real-time monitoring to improve immunization coverage, ensuring missed children received essential vaccines.

CHAPTER 2: MONITORING AND EVALUATION

During the reporting period, WHO supported the Polio Programme in assessing the coverage and quality of polio campaigns by mobilizing 17,252[5] individuals – including surveyors, supervisors and monitors – to conduct the assessment of key monitoring and evaluation (M&E) indicators, Lot Quality Assurance Sampling (LQAS) and Post-Campaign Monitoring (PCM). Over 258,000 children were assessed in 5,311 union councils during LQAS assessments, while 167,000 children were assessed in 2,577 PCM lots after polio campaigns. Over 6,000 university students in their last year of study continued to be trained and engaged to conduct these surveys to ensure independent assessments, while also providing them meaningful field experience in public health interventions. The results and analysis of these monitoring and evaluation activities identified areas where children were missed for vaccination, campaign quality was suboptimal or coverage was low, and enabled data-driven decision-making on corrective measures for subsequent rounds.

KEY DATA POINTS

258,300
children assessed in 5,300+ union councils.

7,100
surveyors mobilized to conduct independent quality assurance sampling.

167,400
children assessed in 2,500+ post-campaign monitoring lots.

3,000+
surveyors deployed to assess coverage through post-campaign surveys.

17,252
individuals mobilized for campaign monitoring activities.

[5] *The number can include repetition because an individual assessor can be deployed in more than one campaign.*

2.1. LOT QUALITY ASSURANCE SAMPLING (LQAS)

Following a polio campaign, lot quality assurance sampling (LQAS) is used as an informative tool to assess campaign quality through field surveys. Every campaign, a total of 60 children – one child from 10 different houses located in six randomly selected clusters – are assessed in each union council (UC). Depending on the number of unvaccinated children found in a lot, the UC performance is assessed as "pass", "intermediate" or "low quality".

With LQAS surveys conducted in 5,311 union councils, 258,000 children were assessed to identify areas where children might have been missed. In 2024 campaigns, the total number of union councils having obtained the "pass" qualification ranged from 70% in the August campaign to 87.5% in the March campaign.

2.2. POST-CAMPAIGN MONITORING (PCM)

Post-campaign monitoring (PCM) provides direct coverage estimates by having teams assess every child for polio vaccination finger marking in 30 randomly selected houses within designated union councils. Additionally, 50 children are randomly assessed through spot surveys conducted in the streets or in different outdoor settings. While LQAS and PCM assessments may be conducted in the same districts, their methodologies remain distinct, ensuring separate evaluations of quality and coverage.

During 2024, 167,434 children were assessed in 2,576 PCM lots and the pass rate varied across campaigns, ranging from 69.8% in the September campaign to 86.8% in the March campaign, with an overall pass rate of 74.9%.

CHAPTER 3: SURVEILLANCE

Throughout the reporting period, WHO partnered with the Government of Pakistan to maintain the largest and most-sensitive poliovirus surveillance network in the world with over 12,500 acute flaccid paralysis (AFP) reporting sites across the country, 127 environmental surveillance sampling sites in 87 districts, and 81 sites to screen and monitor patients with primary immunodeficiency disorders and detect poliovirus. In 2024, this robust surveillance network detected 74 polio cases and 628 sewage samples positive for wild poliovirus. It was critical in identifying geographic blind spots of virus transmission and areas with low routine vaccination coverage, while detecting atypical, asymptomatic and even mild paralysis cases which might otherwise have been missed. Surveillance data enabled the Polio Programme to plan effective evidence-based strategies in all affected areas.

After the detection of several orphan polioviruses (viruses detected in sewage samples that lack recent genetic links to known human or environmental cases, indicating gaps in surveillance or undetected transmission), the Surveillance Unit conducted a comprehensive exercise to assess the risk of missed transmission due to surveillance gaps. This led to identify districts with high probability of undetected transmission and develop an action plan for strengthening surveillance. Based on data of surveillance indicators, population dynamics and local vaccination coverage rates, 40 districts nationwide were identified as high-risk for transmission, and action plans were developed to enhance surveillance in these areas.

In parallel, LogTag devices, real-time temperature monitoring devices, continued to be used for all samples shipped to the laboratory to ensure effective control of the reverse cold chain during transportation. More than 98% of samples delivered with LogTags had optimal reverse cold chain, ensuring sample quality reliability and enhancing the probability of virus detection.

KEY DATA POINTS

12,500
acute flaccid paralysis (AFP) reporting sites (934 added in 2024).

22,216
acute flaccid paralysis cases reported for wild poliovirus testing, of which 74 were positive.

127
environmental surveillance sites in 87 districts (9 added in 2024).

2,037
environmental samples collected for testing, of which 628 were positive for wild poliovirus.

81
sites for poliovirus surveillance in patients with primary immunodeficiency (established in 2024).

3.1. ACUTE FLACCID PARALYSIS (AFP) SURVEILLANCE

Pakistan's acute flaccid paralysis (AFP) surveillance network consists of over 12,500 government and private health facilities, informal and traditional healthcare providers, and more than 150,000 community informants that report any case of sudden weakness or paralysis in children under 15 to the Polio Programme for poliovirus testing. Stool samples collected from 22,216 AFP cases and 11,012 contacts in 2024 were tested at the WHO-accredited Regional Reference Lab for Polio at no cost to the family, confirming 74 polio cases. Further genetic sequencing determined the genetic cluster and lineages of the detected virus to trace its origins and transmission chains, which also helped in identifying infected geographies. Key highlights of AFP surveillance for 2024 include:

- **Expansion:** With the addition of 934 more AFP reporting sites, the AFP surveillance network grew to over 12,500 reporting sites, increasing AFP reporting by 12% – from 19,772 in 2023 to 22,216 in 2024.
- **Community-based Surveillance:** The training and addition of 57,375 community informants and 8,602 health facility-based AFP focal persons strengthened surveillance at the community level, particularly in hard-to-access, riverine and security-compromised areas, leading to 2,423 AFP cases reported through communities.
- **Contact Sampling:** 11,012 contact samples were collected for all inadequate AFP cases[6] and AFP cases reported from mobile populations, access-compromised and hard to reach areas, as well as Afghan refugees. In total, 20 out of 74 polio cases were confirmed through contact sampling.
- **Healthy Stool Sampling:** Stool samples were collected from 25 healthy children from Sujawal district of Sindh to rule out missed poliovirus circulation after an orphan virus was detected in sewage samples. All 25 stool samples were negative for poliovirus. Healthy stool sampling is conducted in areas where high-risk and vulnerable populations reside, but poliovirus is not being detected through any surveillance source, which implies a risk of undetected circulation.

3.2. ENVIRONMENTAL SURVEILLANCE

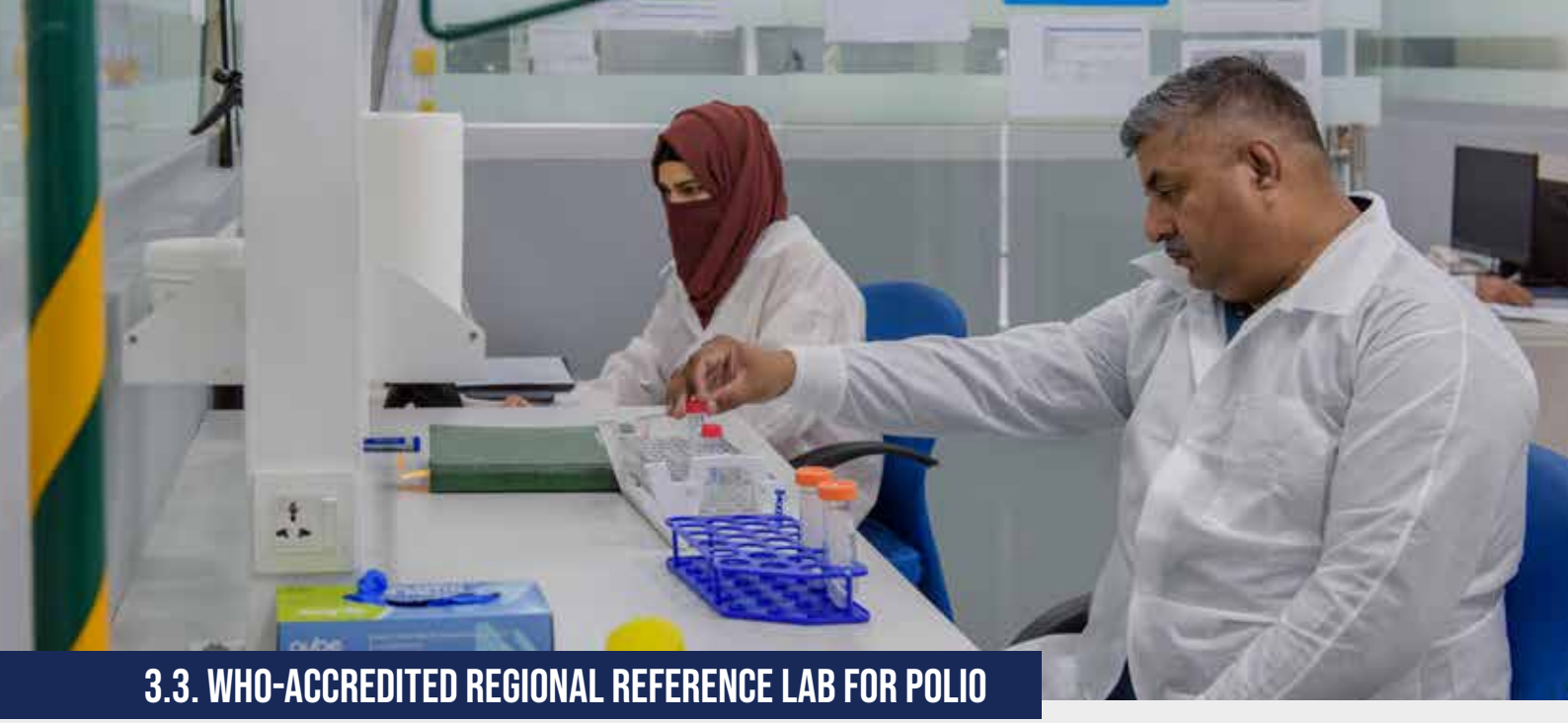
The WHO-supported environmental surveillance network in Pakistan is the largest in the world with 127 sites in 87 districts from where wastewater samples are collected every month for poliovirus testing. Programme teams collected 2,037 wastewater samples, of which 628 tested positive for polio, identifying areas where the virus is circulating in affected populations and enabling the Polio Programme to plan appropriate outbreak response activities. Key highlights of environmental surveillance include:

- **Expansion:** In 2024, nine more sampling sites were added in four more districts, expanding the ES network to 127 sites in 87 districts.
- **One-time Sampling:** 38 one-time environmental samples were collected and tested from high-risk mobile populations and access-compromised areas in Balochistan and Sindh to detect circulation. Six of these were positive from Sindh, prompting their inclusion in subsequent vaccination rounds.

[6] *An AFP case is considered inadequate when two stool samples, which are supposed to be taken 24 hours apart, cannot be collected within 14 days of the onset of weakness or paralysis for any reason.*

Disease surveillance is a powerful tool to level the playing field, to bend the arc of our country away from poliovirus and move towards a polio-free Pakistan. As a public health worker, a polio-free Pakistan is my highest priority and a dream to realize.

Dr Sarwat Wajahat Sheikh
WHO Disease Surveillance Officer,
Malir, Karachi



3.3. WHO-ACCREDITED REGIONAL REFERENCE LAB FOR POLIO

The WHO-accredited Regional Reference Lab for Polio (RRL), housed at the National Institute of Health (NIH), Islamabad, supported poliovirus surveillance through swift and accurate testing of all stool and wastewater samples, as well as genetic sequencing and analysis, to identify genetic and geographic linkages of detected viruses. The laboratory also supported poliovirus surveillance in Afghanistan through stool sample testing and wastewater sample testing. Key highlights of the work of the laboratory during 2024 include:

- **Testing for Pakistan and Afghanistan:** The laboratory tested 55,003[7] stool and 2,037 environmental samples from Pakistan, as well as 12,417 stool and 505 environmental samples from Afghanistan.
- **Sample Monitoring:** 34,828 carriers of stool samples from acute flaccid paralysis cases and 2,000 carriers of wastewater samples shipped to the lab were monitored using LogTags. Out of these, 13 sewage samples and 522 stool samples with temperature breach were recollected and tested, which confirmed one wild poliovirus type 1 (WPV1) case from Jhal Magsi, Balochistan.

3.4. POLIOVIRUS SURVEILLANCE IN PATIENTS WITH PRIMARY IMMUNODEFICIENCY DISORDER (PID)

With WHO's support, the Pakistan Polio Eradication Programme expanded its surveillance network in 2024 with the launch of nationwide surveillance for poliovirus in patients with primary immunodeficiency disorders (PID). This marked a transition from a five-year pilot study led by Aga Khan University, which aimed to identify suspected cases of primary immunodeficiency and monitor potential transmitters of the immunodeficiency-associated vaccine-derived poliovirus (iVDPV).

Immunodeficiency-associated vaccine-derived polioviruses (iVDPVs) can emerge in individuals with primary immunodeficiency, due to a mutation of the virus in their intestinal tract. These persons may shed the poliovirus for long periods after receiving the oral polio vaccine, increasing risk of transmission. Therefore, for polio-free certification, countries must demonstrate comprehensive poliovirus surveillance, including acute flaccid paralysis and environmental surveillance, and surveillance among patients with PID to detect possible iVDPVs. In 2024, PID surveillance was transitioned to the WHO-supported surveillance unit at the National Emergency Operations Center (NEOC), which began the formal national rollout of iVDPV surveillance embedded within PID surveillance. Across the country, 81 sentinel hospitals have been identified, engaging clinicians to screen and report suspected PID cases to the Polio Programme. Blood testing is facilitated for these patients to confirm PID diagnoses. Once confirmed, stool sampling is initiated to detect poliovirus excretion. If poliovirus is detected, monthly stool tests are conducted until the virus is no longer detected.

To date, 591 suspected PID cases have been identified, with 124 confirmed PID cases monitored by national, provincial, and district surveillance teams. The integration of iVDPV surveillance in the broader poliovirus surveillance strategy has strengthened Pakistan's ability to identify and follow prolonged transmitters of iVDPV and aims to minimize the risk of undetected virus transmission.

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[7] *These numbers include the overall stool samples processed by the WHO-accredited Regional Reference Lab for Polio for AFP cases, contact sampling and healthy children stool sampling.*

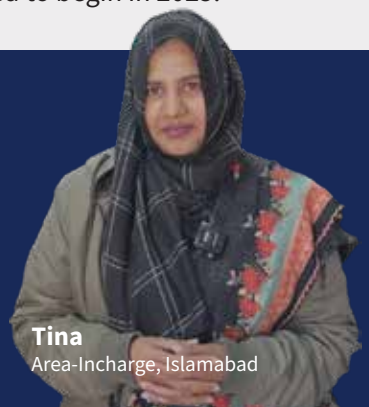
CHAPTER 4: GENDER IN WHO PEI

Adopting a gender-responsive approach in line with the Global Polio Eradication Initiative (GPEI)' s Gender Equality Strategy 2019–2026, WHO continues to integrate gender in its polio operations and support gender mainstreaming in the Pakistan Polio Programme through a focus on recruiting more women in the workforce in technical, operational and decision-making roles, as well as recruiting women in field supervisory cadres of frontline workers, especially in areas where cultural sensitivities make it difficult for male-only vaccination teams to access children in households.

In 2024, collaboration between the NEOC Gender Working Group (GWG) and the WHO Gender Management Group (GMG) drove positive implementation efforts, building on past progress and focusing on future impact. Key gender-related interventions included:

- Integration of gender training and materials in various technical trainings.
- Development and distribution of gender-responsive communication material to be used in campaign training for frontline workers. In parallel, content on gender sensitivity and how to maintain a respectful workplace has also been included in the technical training booklet prepared for community-based vaccinators. In addition, 400,000 brochures promoting a respectful workplace were distributed nationwide among frontline vaccinators.
- Implementation of one of the recommendations that came out of listening sessions with frontline workers with WHO distributing around 60,000 flasks and umbrellas to frontline workers to protect them from harsh weather while they work.
- The WHO-led operations team at NEOC collaborated with the NEOC Gender Working Group to develop comprehensive safety guidelines for frontline workers, create ID cards, and establish a clear overview of Team Support Centers where these vaccinators work.
- To effectively tackle workplace safety concerns, especially those impacting female health workers, the Gender Working Group has successfully developed an Anti-Harassment Policy which firmly aligns with the national anti-harassment law and has been endorsed by the NEOC and the Ministry of National Health Services, Regulations and Coordination. Implementation is expected to begin in 2025.

> *Working in the Polio Programme empowers women, giving them confidence and the ability to support their families financially. Some of our vaccinators are the primary providers for their households, managing their homes through this work. We also receive respect from the communities we serve. People welcome us into their homes, offering food and water, especially during the scorching summer months when we work in harsh weather conditions.*



Tina
Area-Incharge, Islamabad

CHAPTER 5: NATIONAL CERTIFICATION COMMITTEE

The National Certification Committee (NCC) – an independent body that evaluates Pakistan's readiness for polio-free certification and submits progress reports to the WHO EMRO Regional Certification Commission – convened biannual meetings in 2024, reviewing the Polio Programme's progress and advising on the improvements needed to meet the requirements for certification.

The NCC, comprised of leading experts in pediatrics, immunization and neurology appointed by the national government in consultation with WHO Pakistan, reviewed the epidemiology, campaign performance, surveillance indicators and coverage data shared by the Programme. It also assessed whether population immunity was high enough to prevent circulation, the sensitivity of the surveillance network to detect any virus, the country's risk assessment and risk mitigation strategies, as well as preparedness to respond to outbreaks. The Committee also assessed if the country had minimized the risks of reintroduction of poliovirus through virus handling facilities.

The main recommendations included:

- Expansion of environmental surveillance sites to ensure no missed circulation.
- Enhanced acute flaccid paralysis surveillance, particularly in inaccessible areas.
- A comparison of routine immunization rates with previous years to monitor trends.
- Increased coordination with the Expanded Programme on Immunization (EPI) and additinal support to EPI initiatives from the Polio Programme.

WHO supported the Programme in implementing these recommendations through:

- Addition of nine environmental surveillance sampling sites in priority districts.
- Enhanced training and engagement with health practitioners and community informants to report acute flaccid paralysis (AFP) cases, adding over 900 AFP reporting sites and 50,000 community-based informants.
- Collection and testing of one-time environmental samples, particularly in districts without environmental sampling sites, to detect circulation.
- Continued support to the Expanded Programme on Immunization in implementing its outreach activities and the third round of "Reaching the Unreached" activity in priority districts of southern Khyber Pakhtunkhwa.

CHAPTER 6: THE LAST MILE TO END THE GLOBAL THREAT OF POLIO

As wild poliovirus circulation remained intense in 2024 with detections in 90 districts, the Polio Programme, with WHO's support, positioned itself to take advantage of the low-transmission season before May 2025 to conduct high-quality vaccination campaigns and raise children's immunity levels. The Polio Programme objective was to reduce the number of cases and advance towards the interruption of the transmission.

WHO will continue to support the Polio Programme in ensuring the full implementation of the National Emergency Action Plan 2024-25 through the following main actions:

- Implementation of three nationwide polio campaigns in the first half of 2025 to immunize more than 45 million children under five, maintaining a strong focus on ensuring consistent vaccination of all target children.
- Continued implementation of polio campaigns and alternate outreach strategies driven by risk assessments, population movement dynamics and epidemiology, focusing on consistently reaching children on the move or in inaccessible areas.
- Further strengthening of surveillance through continued engagements with physicians and community-based formal and informal practitioners on acute flaccid paralysis reporting, enhancing efforts to identify any and all blind spots of surveillance and filling the gaps.
- Ensuring epidemiology, risk assessments, risk modelling, genetic sequencing and data of lineages continues to be leveraged for analyses and effective interventions.
- Strengthening routine immunization through integrated Polio Programme and Expanded Programme on Immunization efforts and activities, particularly in underserved areas at high risk for polio transmission, to break pockets of unvaccinated or under-vaccinated children and leave no place for the virus to hide and spread.
- Prioritizing vaccination and surveillance efforts in endemic and outbreak-prone districts as well as supporting integrated service delivery activities implemented by partners.

As a founding and implementing partner of the Global Polio Eradication Initiative (GPEI), WHO stands with Pakistan and its partners to provide the highest-quality technical, planning, and operational support to run together the last mile towards polio eradication. Ending the global threat of polio is a health imperative in a context in which the cost of inaction would be higher than the cost of action, since no child in the world will be safe from polio until all children are safe.

STORIES FROM THE FIELD

AYESHA, THE POLIO SURVIVOR PROTECTING PAKISTANI CHILDREN FROM DISABILITY

“It’s not easy for me to walk during polio campaigns due to my limited mobility, but I cannot miss the chance to bring hope and resilience to the children of Pakistan.” Polio eradication is a personal mission for Ayesha Raza, a Pakistani polio survivor and health worker whose remarkable commitment earned her global recognition at the Golden Jubilee Ceremony of the Islamic Development Bank – a polio eradication donor – which took place in Saudi Arabia in 2024. Every year, Ayesha is one of the 400,000 vaccinators who go door-to-door to implement massive Government-led vaccination campaigns, supported by the World Health Organization (WHO) and partners, to protect over 45 million children against paralytic polio in Pakistan.

Ayesha was only two years old when she contracted polio in the 1990s, when Pakistan did not have a dedicated polio programme. Since then, vaccinators like Ayesha have been vital in reducing the number of polio cases by 99.6%. With her left leg paralyzed and difficulty in walking, she endured a challenging childhood. But she refused to let this disability define her. She turned to a career as a health worker, while also volunteering for the Pakistan Polio Eradication Programme.

She works as a vaccinator and social mobilizer in Lahore, transforming her struggles into a powerful example to convince hesitant parents to vaccinate their children to protect them from lifelong disability. "I eagerly await the day when polio is completely eradicated, bringing a brighter future for our nation and the world.”

BRAVE WOMEN ON MOTORBIKES TO REACH NOMADIC CHILDREN

In the rough mountainous terrain of Lakki Marwat, two brave Pashtun women, Bakht Roza and Basmina, navigate remote, security-compromised areas on motorbikes to vaccinate children against 12 deadly diseases, including polio. Working in Bettani Subdivision, where health services are scarce, they are the sole source of essential immunization for children and expecting mothers.

Deployed under the Nomads Vaccination Initiative – launched in 2022 to vaccinate nomadic children who often miss polio and routine vaccinations due to frequent movement – Bakht Roza and Basmina travel vast distances and overcome cultural barriers to protect children from terrible diseases. They have vaccinated nearly 2,800 children, convinced over 200 refusal families to accept immunization, and administered tetanus vaccinations for pregnant women who were previously not receiving vaccination at the local health facility because only a male vaccinator was available.

Braving harsh terrain, falls from bikes, and community resistance, they remain steadfast. “We think of all the children in the community who need our help as our own children, and that motivates us to keep going,” says Bakht Roza.

Their story is a testament to the resilience and dedication of female vaccinators who ensure that every child has the chance for a healthy future.

By Muhammad Shoaib, Peshawar

WHO DISEASE SURVEILLANCE OFFICER RECOGNIZED FOR BREAKTHROUGH CASE DETECTION

“As a public health worker, a polio-free Pakistan is my highest priority and a dream to realize.” Making Pakistan polio-free is a priority for Dr Sarwat Wajahat Sheikh, a WHO Disease Surveillance Officer (DSO) in Karachi’s Malir district. Her hard work and exceptional commitment to identifying and investigating polio cases in her district was recognized by the Government of Sindh on World Polio Day 2024.

In 2017, Dr Sarwat joined WHO in Sindh’s Dadu district, where she played a key role in strengthening poliovirus and vaccine-preventable disease surveillance. In 2021, she was transferred to Karachi, where dense population, frequent migration, and pockets of vaccine resistance, especially in underserved communities, make poliovirus circulation a persistent challenge. There, Dr Sarwat contributed to expanding surveillance sites from 43 to 93, and mobilized 152 community informants to improve polio case detection.

In 2024, she faced one of her toughest cases in Ibrahim Hyderi, a largely slum community of mostly laborers and fishermen, where a child – possibly affected by polio – had unfortunately passed away. The family was hesitant to cooperate with the Pakistan Polio Programme’s case investigation teams. Undeterred, Dr Sarwat spent weeks building trust with the parents, ultimately convincing them to let the teams collect stool samples from other children in the family to rule out polio. Her efforts led to the confirmation of the first polio case in the area in 10 years, triggering an urgent vaccination response to protect all children in the community. This work earned her special recognition from the provincial government. “Disease surveillance is a powerful tool to level the playing field, to bend the arc of our country away from poliovirus and move towards a polio-free Pakistan.”

By Dawood Batozai, Karachi

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