Case Study

Papua New Guinea

Young children and their parents are seen at local health clinics in Lae, Marobe Province, Papua New Guinea, where the polio vaccine is administered to children, on July 24, 2018. A confirmed variant poliovirus (VDPV) in Lae was reported to the WHO on June 21, 2018. Four rounds of supplementary immunization activity targeting children less that five years of age was planned from July to October 2018 to combat the virus.

Photos: © Gavi/2018/ AAPIMAGE-Brendan Esposito

AT A GLANCE

PNG was determined to be a country for WPV importation in 2012.

The national polio immunization programs reported administrative coverage rates between 93 percent and 97 percent.

With increased surveillance measures, no further polio cases have been detected since 2018.

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Six-year-old Gafo from Morobe province during a regular physiotherapy session with Dr Winnie Sadua.

Photo: © Gavi/2018/AAPIMAGE-Brendan Esposito

In April 2018, a six-year-old child named Gafo from Morobe province was taken to the hospital with symptoms of acute flaccid paralysis (AFP).[1] Stool sample testing confirmed that Gafo had been infected by variant poliovirus type 1.[2] Gafo had previously received two doses of oral polio vaccine (OPV), and while this vaccine is safe and effective, on very rare occasions — and only in under-immunized populations — the live, weakened virus in OPV can circulate in a community for an extended period of time and revert to a form that causes paralysis.

Papua New Guinea (PNG), along with the rest of the Western Pacific region, was declared free of polio in 2000. This followed decades of intensive vaccination across PNG and its final case of WPV being recorded in 1996.[3] However, risks remained. In 2012, a global panel of experts conducted an assessment and determined that the risk of WPV importation for PNG (and some other countries in the Western Pacific, including the Philippines) was high.[4] Low vaccination rates, poor sanitation, and a breakdown in health infrastructure contributed to the risk.

With significant gaps in the quality and coverage of health infrastructure, and the majority of PNG's population living in difficult-to-access rural areas,[5] disease outbreaks present a major threat.

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Outbreak response

To contain a potential spread, health workers reached out to members of Gafo's family and community. Poliovirus was detected in stool samples from two of Gafo's healthy close contacts, and on June 22, the PNG National Department of Health (NDOH) declared an outbreak of circulating variant poliovirus type 1 (cVDPV1).

The first of several rounds of subnational supplementary immunization activities in polio-affected provinces began soon after. OPV doses were provided to children under the age of five at health centers and schools, and health workers also reached children in a house-to-house campaign. As surveillance efforts ramped up, cases were detected in other provinces and the PNG government launched a national response.

The polio outbreak spread throughout PNG, causing a total of 26 cases in a period of months. This led to eight rounds of polio campaigns in 2018–2019, including three sub-national and five nationwide vaccination campaigns.

Stronger together

The GPEI partnership played a crucial role in the PNG outbreak response from the outset. Working closely with PNG's NDOH, the GPEI supported a rapid response to the outbreak in PNG by mobilizing resources, deploying experts, and providing technical advice. Drawing on a global network, the GPEI worked with the PNG government to respond early. In the first three months of the response, more than 90 international public health and response workers were deployed to support supplementary immunization, enhanced surveillance, and risk communication in Papua New Guinea.

International cooperation was also critical for diagnosis and testing. Through the Global Polio Laboratory Network (GPLN), stool specimens were collected by clinicians at the provincial level and shipped to the Central Public Health Laboratory Surveillance Unit, in Port Moresby. Samples were labeled, packed, and shipped to the WHO Polio Regional Reference Laboratory located at the Doherty Institute in Melbourne. Further genetic analysis was conducted by the United States Centers for Disease Control and Prevention (US-CDC).

Photo: © Gavi/2018/AAPIMAGE-Brendan Esposito

Strong collaboration between the GPEI and Gavi ensured that the distribution of polio vaccines could be integrated with routine immunization, such as the measles-rubella vaccine. PNG declared 2019 as the Year of Immunization, building on the emergency polio response and seizing on renewed public support for strengthening the immunity of children against a broader range of infectious diseases.

A coordinated funding response — with support from the GPEI and core partners as well as the governments of Australia, South Korea, Canada, the UK, New Zealand, and the U.S. — was also key to PNG's success.

Risk communication and mobilization of the community was a priority from the outset. To heighten awareness across the country, PNG's National Broadcasting Corporation provided airtime for public health messages that focused on the risk to children and prevention through vaccination. The response drew on community-based volunteers, as well as church workers and students to raise awareness and identify local barriers. Posters, banners, loud hailers, and talking points were provided to mobilizers to support community engagement.

Despite enormous challenges in accessing remote communities, national immunization programs reported administrative coverage rates between 93 percent and 97 percent.[6] Noting PNG was still vulnerable to reinfection, the GPEI declared PNG was no longer infected by cVDPV1 in 2020.[7] With increased surveillance measures since 2018, no further cases have been detected.

Effective work to constrain the polio outbreak in PNG was a credit to the leadership and coordination of the PNG government and the GPEI partners. WHO's Regional Director for the Western Pacific presented the PNG outbreak team with an award for excellence, and lessons learned from the response in PNG have been applied to other outbreaks globally. With polio threats under control, PNG was better equipped to handle other epidemiological threats, and polio investments have helped to support testing and treatment for COVID-19 and strengthened routine immunization programs.

More scenes from the 2018 polio vaccination campaign at the Malahang Health Clinic in Lae, Marobe Province, PNG. On page 19 is a young child receiving a vaccine dose; on page 20 is the officer in charge of the event, Daisy Basa.

Photo: © Gavi/2018/AAPIMAGE-Brendan Esposito

Endnotes

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