

The 2022 Malawi Polio outbreak

Penjani Chunda¹, Mike N. Chisema², Annie Mwale³, Dzinkambani Kambalame³, Daniel Mapemba^{3,33}, Adamson S. Muula^{4*}

1. District Environmental Health Officer, Head of Preventive and Promotive Health Services and District Incident Manager, Blantyre District Health Office, Blantyre District Council, Malawi

2. Directorate of Preventive Health Services, Program Manager for Expanded Program on Immunization, Operations Manager Polio Outbreak Response

3. Public Health Institute of Malawi (PHIM), Ministry of Health, Lilongwe, Malawi

4. Editor-in-Chief, Malawi Medical Journal and Professor & Head, Department of Community and Environmental Health, Kamuzu University of Health Sciences (KUHeS), Blantyre, Malawi

*Corresponding author: Adamson S. Muula, Email address: amuula@kuhes.ac.mw

After 30 years of no polio cases reported in Malawi, on 17th February 2022, the government declared a polio outbreak following a confirmed 4-year-old child case of the disease in the nation's capital, Lilongwe. This was the first case of wild poliovirus in Africa in more than five years after Africa was declared free of indigenous wild polio in August 2020. Laboratory analysis showed that the strain detected in Malawi was linked to that which had been circulating in Sindh Province of Pakistan.

Before 2020, the most notable reporting had been on August 11, 2016, when the Nigerian government notified the World Health Organization (WHO) of two new cases of the wild poliovirus from Borno State¹. These cases were reported after Nigeria had just celebrated 2 years of successful interruption of the virus (with cases having been reported earlier in Borno and Yobe States). Efforts by the Nigerian government to rid the country of polio had been hampered by the Boko Haram insurgency, among other reasons^{2,3}. The insurgency caused wide swaths of the affected states' no-go areas for health services, especially community vaccinators, some of whom had been killed⁴. Schools, markets, and camps for internally displaced individuals had also been targeted by the insurgents, the same settings where mass polio vaccinations could have been conducted.

Malawi achieved its Polio free status in 2005 while the rest of the African region received its Polio free status in 2016 with the Polio free certification in August 2020. This is quite recent. Yet, the 2022 notification of a case of paralytic polio in Malawi is a grim reminder that if polio is not eradicated, it will remain a public health threat globally, and more so in countries where there are continued challenges with access to safe WASH (water, sanitation, hygiene) facilities.

Public's response

The declaration of the polio outbreak by the Malawi government understandably caused panic among (some) health workers and the general public. To put into proper perspective the public's concern, this outbreak was announced just a few weeks after the Covid-19 Omicron-driven 4th wave had just passed. Although not as deadly as the previous Covid-19 waves, the public had gotten tired of repeated bouts of hearing about contagion, disruption of usual public life, and the daily Covid-19 updates in various media, and especially on social media. Daily reports included numbers of people testing positive, the deceased and hospitalised,

and percentage those testing positive among those receiving the test on a specific date. The persistence and amount of information given out to the lay public had been so large that another outbreak was just too much for a weary nation. The consolation came when experts explained the technical definition of an "outbreak" i.e., including evening a single case of a disease that had been eliminated from a population.

It is important also to note that a significant proportion of the Malawi population (those 30 years and below) had never seen the devastation that polio used to wreak in 1970-1980. The at-birth oral polio vaccine dose and regular mass mop-up vaccination of children had not been much noticed by a public that had not seen any cases. This was a stark reminder that when prevention initiatives are very successful, they may go unnoticed and that which they prevent is hardly seen.

During the Polio era, and because of the great morbidity and disability that resulted among the survivors of paralytic polio, the government established Malawi Against Polio (MAP), now called Malawi Against Physical Disability (MAPD). The change happened because, after polio, the program was focusing on the debilitating nature of the disease and now targeting general rehabilitation services, some arising from stroke and different palsies. The institution (MAPD) also runs a School of Rehabilitation Sciences, producing rehabilitation technicians after 3 years of college education and training. Graduates from this college comprise the largest group of rehabilitation personnel in the country. The second largest group of rehabilitation personnel are graduates of the College of Medicine of the University of Malawi (now the Kamuzu University of Health Sciences)^{6,7}.

Malawi's Public Health response

Once the Polio Outbreak was reported, the Malawi Ministry of Health (MoH) and with a lot of experience from the Covid-19 fight engaged on multiple fronts. Among the interventions was the rolling out of a polio vaccination campaign. For the Covid-19 vaccines, according to the Ministry of Health, as of 25th August 2022, out of the 13.4 million targets only 2, 966, 128 Malawians have been fully vaccinated this far. Also, 2, 209, 619 Malawians have been vaccinated with the first dose only. The country has until now received approximately a 6.52million doses of Pfizer, AstraZeneca, and Johnson and Johnson. The vaccination target population remained unreached as only 11% of the target population had been immunized. The country has

improved on the vaccine stocks having in the country three types of vaccines namely Pfizer, AstraZeneca, and Johnson and Johnson. Vaccine hesitancy due to misinformation and disinformation remains a challenge.

Concerning the Polio vaccines, as of 16 August 2022 (Malawi Polio Situation Report No. 27), Malawi has completed three rounds of Polio Supplementary Immunization Activity (SIA). Despite the challenges with the approach of doing house-to-house as opposed to fixed temporary sites, the coverage has been sustained above 100%.

For a better quality Polio SIA, the requirement is that Lots (60 under-five children samples) should have no more than 5% of missed children for vaccination after the campaign. It was observed that Malawi went on to improve the LQAS in every round from 17%, 31%, and 65.5% in the first, second, and third rounds of SIA respectively. However, this is below the standard of 80% of the Lots should have no more than 5% of missed children for vaccination. The success of the campaign is the doing of everything and achieving quality through timely logistics, data management, strong service delivery, and supervision among others.

Malawi's child vaccination record is the envy of many countries as such, it was not among the red countries on the WHO's list. Thanks to the robust disease surveillance system that has quickly detected this case at the facility. The 2019-2020 vaccine coverage was above 85% for polio at 0, 10 weeks, and 14 weeks respectively. Despite Inactivated Polio Vaccine being around just five years but uptake is already 80% above WHO's recommended target.

Conclusion

Defeating polio is a global endeavor, but to be acted at the local level. Global partnerships will continue to be vital as polio in one country is a public health threat in the rest. While the 2022 Malawi polio outbreak may have been driven by an imported source, and there was no travel history or contact with a traveler by the index case, Malawi has a responsibility to the world. The country had not seen a polio case for 30 years. However, the public health surveillance systems continue to be robust allowing for the detection of

a single case. The global battle against polio will demand effective leadership, organization, and preparedness which Malawi has so far demonstrated⁵. No other cases have been reported (July 2022) despite an alert reporting system in all 29 health districts.

Acknowledgements

ASM is funded by the ACEPHEM Project at the Kamuzu University of Health Sciences (KUHeS)- and the African Centers of Excellence II initiative. The content in this article is solely the responsibility of the authors and does not necessarily represent the official views of their employers.

References

1. World Health Organisation. Government of Nigeria reports 2 wild polio cases, first since July 2014. 2016. <http://www.who.int/mediacentre/news/releases/2016/nigeria-polio/en/> (accessed Aug 19, 2021).
2. Omole O, Welye H, Abimbola S. Boko Haram insurgency: implications for public health. *Lancet* 2015; 385: 941.
3. Adebayo B. WHO confirms third polio case in Nigeria. *Punch* (Lagos), Sept 5, 2016.
4. Madu C. Gunmen kill nine polio health workers in Nigeria. *Reuters*, 2013. <http://www.reuters.com/article/us-nigeria-violence> (accessed Aug 19, 2021)
5. McCarthy K, Howard W, Yousif M, Moonsamy S, Suchard M The show is not over - wild-type polio in Malawi is a wake-up call and an opportunity for elimination efforts. *Int J Infect Dis* 2022; 119:32-33. Doi: 10.1016/j.ijid.2022.03.004.
6. Muula AS, Broadhead RL. The Australian contribution towards medical training in Malawi. *Med J Aust*. 2001 Jul 2;175(1):42-7. doi: 10.5694/j.1326-5377.2001.tb143513.x.
7. Muula AS. The Kamuzu University of Health Sciences: a "semi" new university is born in Malawi. *Malawi Med J*. 2021 Jun;33(2):71-72. doi: 10.4314/mmj.v33i2.1.