KfW Development Research
Development in Brief

Where do we stand on the road to eradicating polio once and for all?

No. 16, 20 December 2019

Authors: Lan Huong Le, Annette Gabriel
Editor: Michael Ruffert

Major successes in eradicating strains of wild polio …

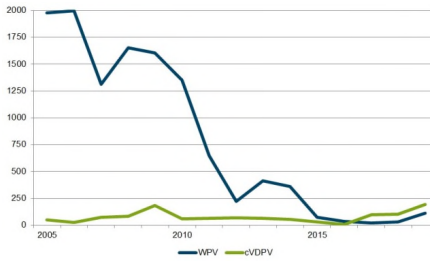
On 24 October 2019, the Global Poliomyelitis Eradication Initiative (GPEI) announced the successful global eradication of wild poliovirus type 3 – type 2 was declared eradicated in 2015. This means that only the wild poliovirus type 1 is still active in Pakistan and Afghanistan. In Nigeria, the third of the endemic countries, no wild polio cases have been found since 2016, making "polio-free certification" in 2020 likely.

When the GPEI was founded in 1988, the wild polio virus was still widespread in 125 countries. The number of acute polio cases has decreased since then by 99.9% (from 350,000 to 113 in 2019). At the same time, however, this number signifies a further increase compared to the previous year: in 2018 only 33 cases were registered.

… but rising cases of illness caused by vaccine-derived viruses

The great success in the containment of the wild poliovirus is also due to the effectiveness of the live oral polio vaccine (OPV): when in close contact with people who have been vaccinated, the diluted vaccine viruses can also have immunising effects in unvaccinated people, thereby "co-immunising" entire population groups. The major drawback, however, is that when these vaccine viruses circulate over a longer period of time in under-immunised regions, they can undergo genetic mutations that can make them aggressive and then trigger "polio infections" themselves. Although the number of these "vaccine-derived" illnesses is still relatively low overall, the trend has been rising for several years; since 2016 it has even exceeded that of wild polio infections. Larger vaccine-induced outbreaks occurred again in 2019: most of the 195 cases were recorded in Angola (60), the Democratic Republic of Congo (50) and Nigeria (18). But there are also cases in Asian-Pacific countries. This trend is clearly related to the below average vaccination rates in these regions.

Graphic 1: Registered polio cases worldwide



WPV = Wild Polio Virus, cVDPV = circulating Vaccine Derived Polio Virus

Source: WHO, author's representation

Why is the battle to eradicate polio forever so difficult?

The most important measure to eradicate polio, therefore, besides strengthening monitoring systems, is to achieve and maintain high vaccination rates. This is equally effective against wild and derived polioviruses.

However, vaccination campaigns have their limitations in remote and inaccessible regions. It is not a coincidence that the main infection countries of both virus types are almost all fragile countries: firstly, a rapid increase in vaccination rates is often difficult to achieve here due to the security situation (and the distrust of the population is often particularly high). Secondly, refugee and migration flows make it difficult to identify and contain outbreaks quickly.

Outside high-risk regions, WHO today recommends switching from the live vaccine to inactivated poliovirus vaccine (IPV): this inactivated vaccine is injected and provides individualised immune protection against wild and derived polioviruses in the body. In contrast to OPV, however, it has no co-immunising effects in the environment and cannot therefore interrupt circulating infections. Health experts are therefore also pinning their hopes on new vaccines that combine the advantages of the two previously common types of vaccines. There is currently a new oral live vaccine in an advanced stage of development to which this could apply.

Conclusion: focus on increasing vaccination rates in fragile contexts

As long as polio is not globally eradicated, widespread immunisation in high-risk regions – despite low incidence rates – must be continued to maintain the successes achieved so far. However, the real "key" to ultimately eradicating polio lies in increasing vaccination rates in under-immunised populations. This requires in some cases new approaches, such as closer cooperation with traditional and religious dignitaries and local NGOs, or the involvement of opposition groups to ensure the safety of vaccination workers and to prevent vaccination campaigns from being politicised (as in the past, for example, by spreading the rumour that the vaccine would make Muslims infertile or children ill). It may also be helpful to use other confidence-building access to target groups (e.g. in the area of drinking water and sanitation services, food security, etc.). The GPEI Funding Conference held in Abu Dhabi in November 2019 also helped improve financing conditions for the final battle against polio. ■