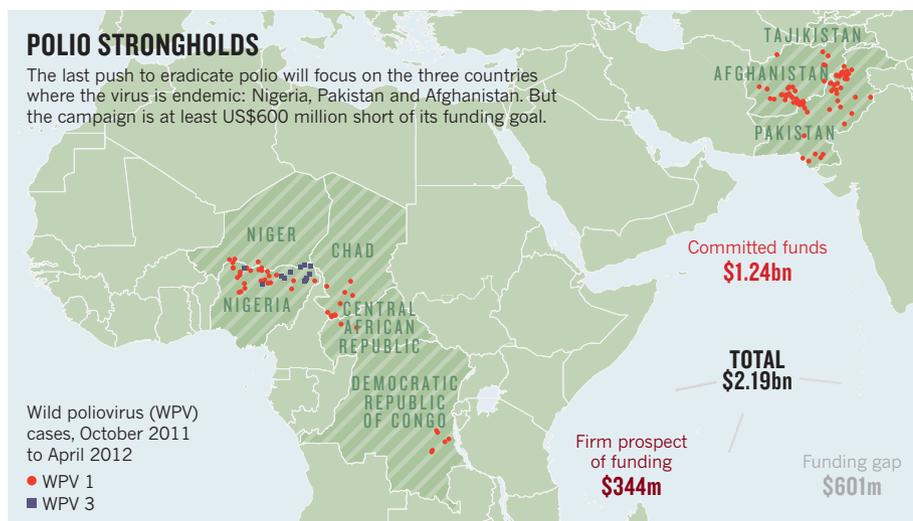


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HEALTH

Polio's last stand

As the global eradication effort ramps up, funding shortfalls threaten the programme's gains in Africa and Asia.

BY EWEN CALLAWAY

A hard-fought battle against the polio virus may be approaching its endgame. Last week, health officials laid out plans to eradicate the virus from its last redoubts, but warned that the effort may founder owing to a US\$1-billion funding gap.

"We are truly at a tipping point in the programme right now," says Bruce Aylward, an assistant director-general at the World Health Organization, who is leading the eradication effort. Speaking at the 65th World Health Assembly in Geneva, Switzerland, he announced an Emergency Action Plan to step up vaccination efforts in the three countries that have never been able to stop the virus from spreading: Nigeria, Afghanistan and Pakistan.

The plan, which would boost global spending to \$2.2 billion over the next two years, aims to stamp out new polio cases by the end of this year. Some experts believe it will take longer, but they agree that the push will eventually deliver victory to the Global Polio Eradication Initiative (GPEI), a \$9-billion campaign that began in 1988, a time when an estimated 350,000 people succumbed to polio each year. The initiative, based in Geneva, made rapid gains in the Americas, Europe and parts of Asia, but since 2001, incidence rates have plateaued, with 1,000–2,000 people developing poliomyelitis each year worldwide.

To eliminate those cases, the GPEI must ensure the vaccination of a majority of children in hard-to-reach and war-torn areas such

as Kandahar province in Afghanistan. But the global economic crisis has created a \$945-million gap of unfulfilled commitments in the initiative's budget for 2012–13, which is already forcing the campaign to limit vaccination in neighbouring countries such as Niger and Tajikistan (see 'Polio strongholds'). Although about one-third of that funding gap looks set to be filled, Aylward warned that shortfalls in the second half of this year could compel the GPEI to pull back in Afghanistan and Pakistan, too.

"If the money doesn't come and they can't build these walls of immunity, there is a risk that polio will implant itself and start circulating" in neighbouring countries, says David Heymann, director of the Centre on Global Health Security at Chatham House in London, and former head of the WHO polio-eradication effort. China's western province of Xinjiang, for example, is fending off an outbreak that originated in Pakistan. The GPEI estimates that if polio is not eradicated and mass vaccination ceases, the number of children paralysed each year will rise to 200,000 within a decade, and unvaccinated adults will be vulnerable to a more aggressive form of the disease, as they are in Xinjiang.

On 25 May the World Health Assembly passed a mostly symbolic measure declaring polio a "programmatic emergency for global public health", but progress in some countries has persuaded GPEI officials that eradication

is within reach. India has not recorded a case of polio in 16 months: an unmitigated victory given that the country's high population density and poor hygiene has in the past made it ripe for the spread of the virus. A wide roll-out of new vaccines that effectively target the strains in circulation seems to have won the battle, says Nicholas Grassly, an epidemiologist at Imperial College London. India's success also shows that "the barriers are not technical, they are about management, implementation, oversight and commitment to eradicating polio", he adds.

Last year, Pakistan seemed to pose a major obstacle to eradication, not least because flooding in 2010 displaced millions of people, many of whom missed scheduled vaccinations. The programme was also hampered by widespread suspicion after the revelation last July that the US Central Intelligence Agency may have used a vaccination campaign to obtain DNA from children living in Osama bin Laden's compound in Abbottabad (see *Nature* 475, 265; 2011). A doctor involved in that effort, Shakil Afridi, was last week sentenced to 33 years in prison.

The incident caused support for vaccination to plummet temporarily in Balochistan province and the Federally Administered Tribal Areas, where most of Pakistan's polio cases occurred last year, says Heidi Larson, an anthropologist at the London School of Hygiene and Tropical Medicine, who maintains a Vaccine Confidence Index for Pakistan and other developing countries.

GETTING BETTER

But the country now seems to be making progress, recording just 16 cases of polio so far in 2012 — half as many as this time last year, with none in Balochistan. In Afghanistan, worsening security led to a threefold increase in polio cases between 2010 and 2011, but the country has recorded just six cases so far this year. Nigeria, which registered 62 cases due to wild poliovirus strains in 2011 (as well as 33 cases caused by the spread of a strain used in the live vaccine), has had 35 cases so far this year.

The WHO's Emergency Action Plan includes measures tailored to individual areas, such as winning the support of Islamic scholars in Pakistan, and improving tracking of migrant populations in northern Nigeria. "It's a very ambitious programme," says Zulfiqar Bhutta, an immunization expert at Aga Khan University in Karachi, Pakistan. But with a history of poor oversight and a lack of local accountability in the three remaining endemic countries, "the devil is in the detail of implementation".

However, India's success in staunching the spread of polio has shifted the discussion from whether polio will be fully eradicated, to when, says Aylward. The tentative deadline of the end of 2012 is likely to be the initiative's third missed goal, after deadlines in 2000 and 2005 passed the campaign by. "What's changed is that nobody is thinking, 'Maybe we call it off,'" says Aylward. ■ SEE EDITORIAL P.547

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