

Vaccination Wars



“War, what is it good for? Absolutely nothing,” Edwin Starr once sang. Well, it turns out Starr was wrong – war is good for spreading disease, and polio, almost eradicated by 2012, has been the chief beneficiary in recent years. As we approach World Polio Awareness Day, on Oct 24th, **MARY DE RUYTER** takes a closer look

Imagine lying in an airtight metal cylinder, barely able to move, relying on a machine to breathe for you. You might have to spend a few weeks inside it, or maybe most of your life. Invented by Philip Drinker, the negative pressure ventilator – or iron lung, as it was commonly called – was first used to treat an eight-year-old girl dying of polio in the US in 1928. At the height of the poliomyelitis (polio) epidemic in the 1940s and 1950s, the forbidding-looking machines lined the wards of hospitals, mostly with children inside.

The machine looks so archaic now that it's hard to imagine the disease it treats still exists. But not only is polio still out there, in some countries it's making a roaring comeback. This highly infectious virus spreads through poor hygiene (the faecal-oral route) or contaminated food and water. It usually hits children

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STUART BATTY, ROTARY

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DR AYLWARD, WORLD HEALTH ORGANIZATION

under five years, bringing fatigue, fever, headaches, vomiting, neck stiffness and limb pain. One in 200 victims suffers the destruction of nerve cells that activate muscles, causing affected limbs to become floppy and lifeless, sometimes permanently. Between five and 10 percent of sufferers who become paralysed die after their breathing muscles also become immobilised.

Then and now

Polio dates back to ancient Egyptian times, but polio's reign of terror peaked in the first half of the 20th century, when half a million people were left dead or paralysed each year.

In 1921, an adult Franklin D Roosevelt contracted polio and was permanently paralysed. On becoming US president, Roosevelt founded the National Foundation for Infantile Paralysis, known as the March of Dimes after its annual event which funded, among other things, the development of vaccines by Jonas Salk in 1955 and Albert Sabin in 1961.

The widespread implementation of polio vaccinations in the ensuing decades led to polio being controlled throughout the industrialised world, but it remained an issue in developing countries. In 1985, Australian Rotarian Clem Ranouf dreamed up PolioPlus, the largest international private-sector support of a public health programme. Rotary International initially pledged US\$120 million towards the cause, and three years later Rotary became a key partner in the Global Polio Eradication Initiative (GPEI), together with the World Health Organization (WHO), Unicef, national governments and the US Centers for Disease Control and Prevention. The original target was the eradication of polio by the year 2000,

and although that target wasn't reached, tremendous progress has been made. Today, 80 percent of the world's population lives in certified polio-free regions, and Wild Polio Virus (WPV) type 2 was completely eradicated in 1999. WPV3 cases are now few and far between. Only Afghanistan, Nigeria and Pakistan remain polio endemic with WPV1 the major concern, down from more than 125 countries in 1988. By December 2012, when only 215 cases of WPV had been recorded globally that year, it looked as if the war had been won.

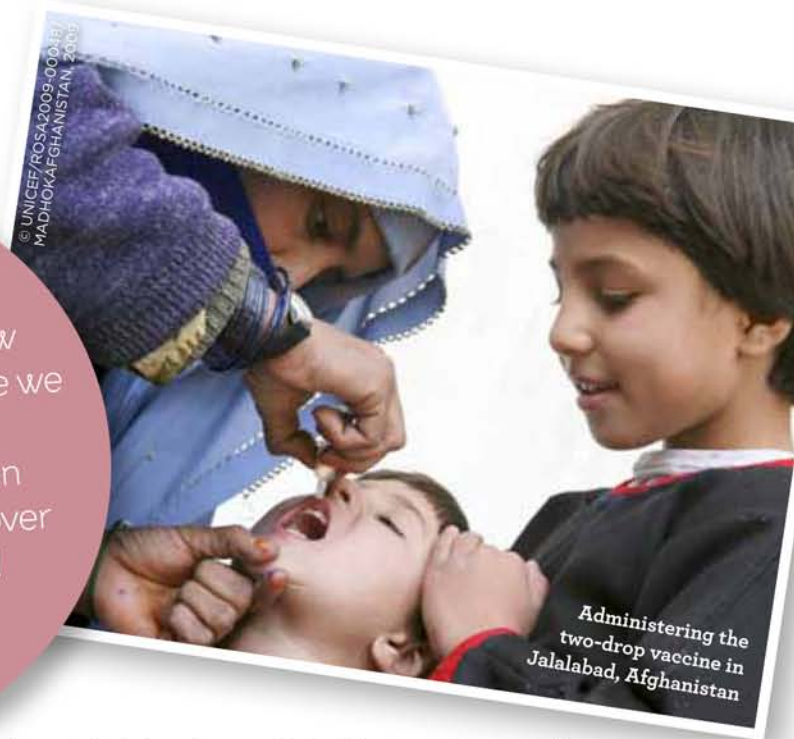
Fast-forward just 12 months and the picture was very different: 406 - almost twice as many - cases were recorded in 2013. More worryingly, 256 of those cases were in countries that had previously been polio free.

As had happened so many times before, war brought disease in its wake. In polio's case, civil unrest severely hampered vaccination programmes in Syria and Pakistan, and as refugees from war-and famine-torn countries poured across borders, they brought polio with them.

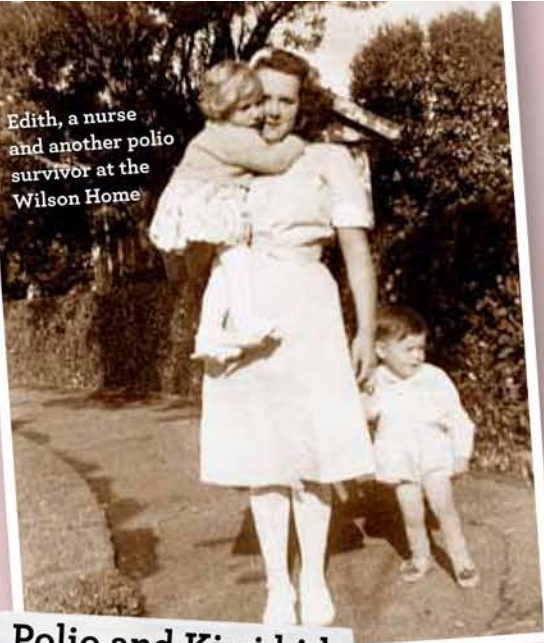
In May 2014, the WHO declared polio a Public Health Emergency of International Concern.

War games

Supporters of the GPEI credit the worldwide adoption of polio vaccines for the progress achieved against the disease. But when it comes to getting chilled vaccines to remote areas, conflict poses a real threat to such logistically difficult programmes.



Edith, a nurse and another polio survivor at the Wilson Home



Polio and Kiwi kids

Despite New Zealand's isolation, we haven't always been immune from polio's ravages; the first case of infantile paralysis was reported in 1887. Several epidemics hit the country from 1916 – schools, movie theatres, churches and swimming pools were closed – until mass immunisation began in the 1960s.

Whangarei-born Edith Morris contracted polio at six months old, in 1945, and went into isolation for three months. She moved to the clifftop Wilson Home for Crippled Children, Auckland for rehabilitation from 18 months until five years of age. Morris calls it being “institutionalised in paradise”; schoolwork and games in the garden, plenty of time in the sun. But she endured intense therapy to get her limbs working again, and Morris' parents could only visit once a month. Morris wore leg braces for much of her life.

The effects of polio often return, usually 20-45 years after the initial attack. There's no definitive cause known for Post Polio Syndrome (PPS), but the most accepted explanation is undamaged nerves and muscles become overworked, and begin to break down. Survivors suffer from fatigue, muscle weakness or spasms, joint pain and breathing difficulties.

Morris, 69, is now in a wheelchair with PPS, and has an army of accessibility aids to assist her busy life. For three-and-a-half years she presented a disability-focused radio show on Community Radio Hamilton, and until recently was the president of Polio NZ (www.postpolio.org.nz), which has 23 support groups offering practical and financial assistance to those affected by polio. It's difficult to pinpoint how many Kiwis have PPS, but approximately 9500 New Zealanders had polio as children, and Post Polio Health International says up to 40 percent of polio survivors develop PPS.



Edith at a regular hydrotherapy session

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NEW ZEALAND
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In October 2013, a polio outbreak in Syria was attributed to low vaccination rates due to the region's ongoing civil unrest. It became a Middle East issue – the virus quickly spread to Iraq, Egypt, Israel, the West Bank and the Gaza Strip. Even Turkey was on high alert as scores of refugees crossed into the country. After political negotiation, a massive campaign was launched to vaccinate nearly 22 million children in seven countries.

Dr Bruce Aylward, the head of the WHO's polio eradication programme, spoke on Radio New Zealand National in May; he explained the WHO has not been able to vaccinate for nearly 24 months in the border area of Pakistan and Afghanistan, where there's been a large upsurge in cases. Pakistan's densely populated Peshawar Valley and North Waziristan are seen as the main 'engine' of polio transmission, says the GPEI. North Waziristan has the largest number of children being paralysed by polio; tribal leaders in North Waziristan suspended immunisation in June 2012, and thousands of people have left the area because of clashes between the military and the insurgents.

Formidable challenges remain. Local volunteers can be trained to give the two-drop vaccine (particularly in Syria's unstable north), but even they aren't safe: Rotary International says 60 polio vaccinators, local and foreign, have been killed in Pakistan since December 2012. Polio workers are often detained or attacked due to suspicions they are enemy spies. Deaths of vaccinators have also been recorded in Nigeria.

In addition, Dr Aylward explains the virus “can spread long distances very quietly”; people carry traces of the vaccine in their faeces for around two weeks, and many unvaccinated carriers of the disease don't even have symptoms. Constant vigilance is required to keep on top of the situation.

A November 2013 outbreak in Cameroon, which wasn't contained in time, spread to Equatorial Guinea, and also places the Central African Republic at risk; a virus closely related to the Cameroon one was found in Somalia, Kenya and Ethiopia.

Despite suffering setbacks, the GPEI is still making positive progress in many places. For instance, in February 2014, the Global Islamic Advisory Group issued a declaration supporting vaccination in polio-endemic parts of the Islamic world.

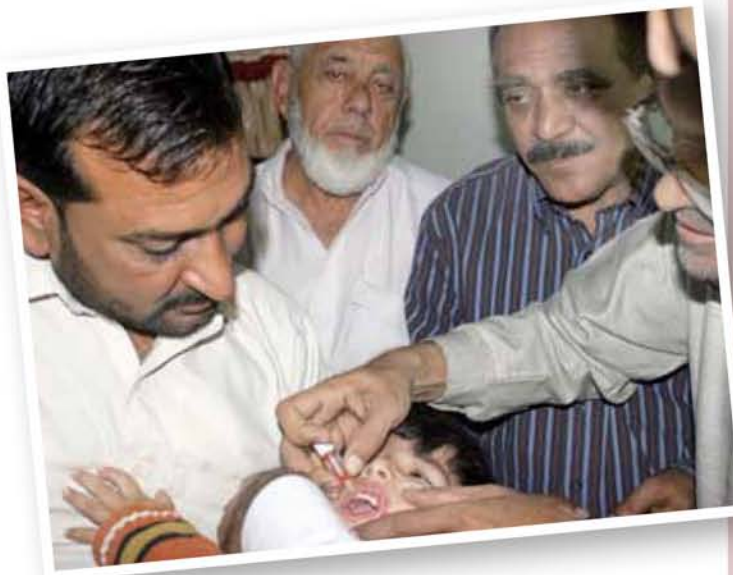
Should the goal of eradication ever be achieved, the payoff will be well worth it. WHO says eradication “would save at least US\$40–50 billion over the next 20 years, mostly in low-income countries. Most importantly, success will mean no child

will ever again suffer the terrible effects of lifelong polio-paralysis."

Global problem, local solutions

While polio is high on the threat list for the WHO, it probably seems very far away to most Westerners – especially here in New Zealand, where we've only seen seven cases of polio since 1962. Although outbreaks have popped up in a wide variety of countries, they remain largely localised and restricted to the developing world. But if we're feeling complacent about the threat, or worried about the amount of money our government might be spending overseas, it helps to remember the only way to truly be safe from polio is to get rid of it globally. If the disease begins to spread beyond the nations currently affected, no country will be immune.

Dr Aylward said most Westerners critical of the eradication effort's price tag have either forgotten




the disease or never experienced it personally. "If we don't get this finished in those last few corners, this is a disease that will come roaring back and within a decade we will see hundreds of thousands of children paralysed again in well over 100 countries around the world," he predicts.

And then there's the travel risk. According to the Ministry of Health, there is "an extremely low risk of cases being imported to New Zealand from these remaining endemic areas and occasional spread elsewhere. However, unimmunised New Zealanders who travel to endemic areas are at risk of infection."

It may all seem so far away that it's barely relevant, but contributing to the worldwide eradication of polio doesn't involve risking your life to volunteer in Pakistan, or digging into your pocket to donate funds to the effort (though that's always welcome). It's as simple as making sure you and your family are immunised.

Polio can only live in human hosts, and if we're all immune, the disease will disappear. Yet four percent of Kiwis currently opt out of vaccination programmes for their children completely, and a further six percent choose to only partially vaccinate. In the Waikato region, 14 percent of children fall short of national vaccination targets at eight months old. These children are at a low (but very real) risk of diseases such as polio and whooping cough, and with almost 200,000 Kiwis currently overseas on an extended or long-term basis, the unimmunised are increasing the risk of diseases spreading worldwide.

In a society where immunisation is as easy as visiting your GP, many would argue abstinence is a luxury no one can afford. The fight against polio will only be won when every single child has access to the vaccine. 

Kiwis overseas

Though most New Zealanders don't remember when polio existed here, some Kiwis are working hard to help wipe out the disease in other countries.

Stuart Batty is Rotary's PolioPlus national advocacy advisor for New Zealand. He says Rotary's 230 clubs have raised just under \$6.8 million for polio since 1985, either through their general budget, holding one-off events or by collecting donations directly from the public.

The encouragement of ongoing immunisation is part of Rotary's brief, as is lobbying those in power. Since 2002, New Zealand's government has given \$5.2 million to Rotary and other aid agencies; the last grant was in June 2010.

So why should we care about a problem so far away? "We can't turn our back and say 'We don't have polio in New Zealand, so we don't need to support these people,'" says Batty. "If polio gets established again and spreads, then billions would have been spent for nought."

Number crunching

- 1998: an estimated 350,000 cases annually. 2013: 406 reported cases.*
- More than two billion children have benefitted from GPEI's work.**
- Cost of polio endgame strategy 2013-2018: US\$5.5 billion. Current funding shortfall: US\$563 million.**

*World Health Organization.

**Global Polio Eradication Initiative.

