What will become of the polio network?

Polio could be history within a few years, but what will become of the vast network set up to fight the disease is unclear. Health experts fear that once polio is eradicated, donors will stop funding the diversified network, which now helps immunize children against many other diseases, fight outbreaks and respond to natural disasters.

When a massive earthquake ravaged northern Pakistan in October 2005, the initial aid provided to survivors in many areas came from highly trained World Health Organization (WHO) polio medical officers.

In many African countries, it is these same polio officers who lead vaccination drives to crush other diseases, including hepatitis B and measles, and who detect outbreaks, like Marburg fever in Angola in 2004.

While fighting to end poliomyelitis, thousands of polio medical officers have adapted their skills and duties to become vital cogs in national health networks.

But leading WHO officials fear that donors will stop funding the massive global network altogether after polio’s eradication, resulting in the loss of a vital resource that is now crucial to immunization campaigns and outbreak responses in many countries.

“Our teams not only helped in the earthquake zone, but they also helped to develop guidelines for avian flu surveillance and now routinely collect data on measles and neonatal tetanus within their acute flaccid paralysis (AFP) work,” Dr Nima Abid, WHO’s polio team leader in Pakistan, told the Bulletin.

WHO’s diverse anti-polio approach, made possible by an annual US$ 100 million in funding under the Global Polio Eradication Initiative, has brought the disease to the brink of eradication.

At the same time, it has helped to boost health services in many developing countries, reducing mortality and morbidity levels for measles, malaria and vitamin A deficiency in the process.

Some 3300 AFP surveillance and response staff operate in 54 countries, along with thousands more polio communication and social mobilization workers.

“This is not a group that just detects diseases but it also responds, does local planning and mapping, gives vaccines to children and develops response mechanisms,” said Dr David Heymann, assistant director-general for WHO’s Communicable Diseases cluster of departments. “With influenza, the polio officers could do much the same.”

“But our fear is that as soon as the last case of polio occurs, it is going to be hard to maintain the funding to even continue the surveillance necessary to certify eradication.”

Polio remains endemic in Afghanistan, India, Nigeria and Pakistan, and there is a good chance that the virus can be eradicated in those countries within two years. Final certification and verification of the disease’s demise is possible by 2013, said Dr Bruce Aylward, the director of the Global Polio Eradication Initiative at WHO.

Governments, in conjunction with WHO and in line with the International Health Regulations 2005 (IHR), should use the “slack” provided by these next few years to permanently integrate as much of the polio network as possible into existing public health systems, Aylward said.

Public health experts such as Heymann and Aylward agree that allowing the polio network to collapse would be akin to the tragedy of scrapping the smallpox surveillance system after the last case of the disease was reported in 1977 in Somalia.

“We must make sure we don’t repeat the same errors when polio ends. It is a matter of finding the resources,” Aylward said.

The polio network in Nigeria has been involved in active disease surveillance for potential human cases of avian influenza.
The global polio network has become an integral component of national and regional health systems. Not only do its surveillance officers vaccinate against polio, but through the public-private GAVI Alliance — formerly known as the Global Alliance for Vaccines and Immunisation — they have also been able to rapidly introduce new and underutilized vaccines around the world, including for hepatitis B and Haemophilus Influenza type b (Hib).

Polio field workers have also led the march in reporting and responding to other priority diseases, including measles and rubella. The efforts of polio surveillance officers have helped countries move closer to achieving Millennium Development Goal 4; by reducing measles mortality, the lives of more than 500,000 children are saved every year.

While immunizing children against polio, measles and other diseases, polio surveillance officers have also been distributing vitamin A supplements, particularly in sub-Saharan Africa and Asia, helping to avert more than 1.5 million childhood deaths to date. Polio officers have also led drives to hand out insecticide-treated bed nets across malaria-ravaged countries in sub-Saharan Africa.

WHO country and regional offices helped to prepare applications for many of the more than 70 countries that needed support for vaccines and financial aid from the GAVI Alliance after its launch in 2000.

“Without the technical presence from polio programme staff, because the most prepared staff at regional and country level cognisant of immunization activities were the AFP surveillance staff,” said GAVI’s deputy executive secretary, Michel Zaffran.

Zaffran said maintaining as much as possible of the polio system after eradication would be “very helpful” for GAVI, as it helps to increase vaccination coverage across many health resource-starved countries, particularly in Africa.

“It would be a pity if this human resource was lost, because certainly the technical assistance they provide is badly needed in many countries,” he told the Bulletin.

Such a resource could help many countries comply with legally binding revised health rules. The International Health Regulations (IHR), adopted by the World Health Assembly in 2005 and set to come into force in June 2007, call on signatories to develop, strengthen and maintain surveillance and response capacities. The aim is to detect, assess, notify and report public health events to WHO, and respond to risks and emergencies.

Utilizing the polio surveillance staff and infrastructure would help governments develop such capacities and safeguard their own national security, said Dr Guénaël Rodier, director of the IHR Coordination Programme at WHO.

But funding remains the core problem, Rodier acknowledged. WHO’s polio eradication campaign has received more money than any other WHO programme and has benefited greatly from many donors, including US Centers for Disease Control and Prevention and Rotary International.

In turn, the campaign produced arguably WHO’s largest and best prepared disease immunization and response system, deploying medical officers to scores of countries and equipping them with vehicles and telecommunications equipment.

“Now we have a polio system that is not yet dead, but we also have the challenge that it may die,” Rodier said. “If we don’t identify resources to support most of the polio infrastructure, it will be difficult to absorb them.

“And the next time we have a new SARS (severe acute respiratory syndrome) or influenza pandemic, all these people will be missing.”

Once polio has been eradicated, WHO will still maintain a focus on the disease.

Members of WHO’s Alert and Response Operations team, which identifies and responds to events of international public health importance, have been brushing up on their knowledge of polio.

But it remains to be seen whether the team would be given the role of taking on future polio responsibilities, said its coordinator, Dr Thomas Grein.

Grein said polio surveillance officers are highly trained and already respond to many of the diseases his team responds to.

“The polio people we have seen in the field do not require a fundamentally different skill set. Polio people have to be on the lookout for initial events, unexpected events, haemorrhagic disease, fever diseases and unknown diseases,” Grein said.

“It would be a public health catastrophe if this entire network would be scrapped and a few years later we realized we need its health officers to treat people in areas where we previously had them.”

Paul Garwood, Islamabad
Vaccinating against cervical cancer

Since last year, it has become possible to vaccinate against the human papillomavirus (HPV) that causes most cases of cervical cancer, but countries face tough decisions before making the vaccine widely available.

The excitement surrounding the HPV vaccine is not surprising given that half a million women a year develop cervical cancer and half of those die as a result.

But the HPV vaccine is no magic bullet: it has the potential to substantially reduce the prevalence of cervical cancer, but not to eradicate it. Now that an HPV vaccine is already on the market, while a second is expected to receive regulatory approval soon, health professionals and health-care policy-makers face tough decisions.

Questions such as ‘who should get the vaccine and at what age?’, ‘how to include HPV vaccination in a comprehensive cervical cancer control programme?’ and ‘which sustainable funding mechanisms should be in place?’ are just the start.

Such decisions may be easier for developed countries which have data on HPV and cervical cancer prevalence, existing vaccination programmes and ample clinical trial data on the HPV vaccine itself, while developing countries may not have a complete set of epidemiological data or a mechanism to deliver the vaccine.

But even for developed countries, cost is a major barrier to making the vaccine widely available.

In June 2006, Merck’s Gardasil received approval from the US Food and Drug Administration and, shortly afterwards, was provisionally recommended by the US Advisory Committee on Immunization Practices for girls and women aged nine to 26.

As of the end of 2006, the vaccine had been approved in 49 countries worldwide, with more expected to join the list this year. The quadrivalent vaccine gives 100% protection against infection from HPV types 16 and 18, which are responsible for around 70% of all cervical cancers. It also protects against HPV types 6 and 11 that cause genital warts.

GlaxoSmithKline Biologicals applied to the European Agency for the Evaluation of Medicinal Products for international regulatory approval in March 2006 to market its bivalent vaccine Cervarix for HPV types 16 and 18.

Meanwhile, the World Health Organization (WHO) has been developing information that countries can use to formulate their policies on HPV vaccination.

“Vaccines have been tested in North America, Latin America, Europe, to some extent in Asia, but not in Africa yet,” said Dr Teresa Aguado, WHO’s coordinator for the Initiative for Vaccine Research, Product Research and Development team.

Last year WHO made available to countries policy and programme guidance notes and technical briefing notes on introducing HPV vaccines. The documents drive home the need to educate governments, health professionals and the public about both viruses and vaccines, and the importance of collaboration between reproductive health, immunization, child and adolescent health and cancer control programmes.

“The guidelines make it clear that partnership between health programmes is vital for a coordinated introduction of the vaccine,” said Dr Nathalie Broutet of WHO’s Department of Reproductive Health and Research. “Vaccine introduction gives these programmes the opportunity to deliver other interventions while immunizing against HPV.”

This year promises to be a significant one for HPV vaccination. WHO’s six regions plan meetings to discuss these issues, starting with one in April of WHO experts and government officials from the South-East Asian and Western Pacific regions.

Merck’s market price, before agents’ fees, is approximately US$ 90 a dose for a three-dose vaccination schedule in the United States, so the vaccine is expensive even by developed-world standards. “Whether it saves money will vary from country to country, but according to our analysis and others’ it’s expected to be cost-effective in the developed world,” said Dr Richard Haupt, executive director for medical affairs at Merck’s vaccine division.

“It’s important to make sure Gardasil is available globally. We’re working with international organizations like WHO, the GAVI Alliance and the Bill & Melinda Gates Foundation, organizations that are crucial in getting vaccines to the developing world, and we will engage in tiered pricing,” Haupt added.

The vaccine is also on the WHO prequalification list, which could open the door to purchases in developing countries via United Nations agencies.

Developing countries that acquire the vaccine would need to decide whether to start vaccinating females alone or both adolescent girls and boys.

The most successful vaccination programmes have been community-wide and avoid any stigma associated with single-sex vaccination, but the cost may restrict HPV vaccination to girls, especially since clinical data on efficacy in boys are still being gathered.

The second question is how to reach the population. Although the vaccine is approved for women up to the age of 26, it is generally considered to be best administered at the age of nine to 13 years, before girls become sexually active and potentially exposed to HPV.

“For countries where schools are well attended by girls, a school-based vaccination programme can be the answer. Otherwise, alternatives for vaccine delivery will have to be identified and tailored to the country context,” said Aguado.
For the public and even health professionals, the first stage is education. For example, researchers found that few women in Hong Kong are aware of the role of HPV in causing cervical cancer. “HPV and cervical cancer are not that well-taught in medical or nursing school, so health-care providers need education too,” said Professor Hexter Y S Ngan of the Department of Obstetrics and Gynaecology at the University of Hong Kong Li Ka Shing Faculty of Medicine.

Hong Kong officials say they do not have enough data to decide whether to introduce the HPV vaccine widely. “There are data on the prevalence of HPV infection of certain population sub-groups in Hong Kong, but prevalence data for the general female population and some population sub-groups, such as very young females, are insufficient,” said Dr Tse Lai Yin, consultant in community medicine at the Hong Kong Department of Health’s Centre for Health Protection.

Aside from cost-effectiveness, vaccination delivery and education, the advent of the HPV vaccine has raised other issues. Promoting an antiviral vaccine and, at the same time, making it clear that HPV is a sexually transmitted infection will require deft handling in the wording of policy, education and publicity materials. “Screening and treatment services will still be required, because the vaccines only prevent about 70% of cervical cancer cases and because it will be years, if not decades, before we see the full benefit of vaccination in terms of a reduction in the incidence of cervical cancer,” said Dr Andreas Ullrich, medical officer with WHO’s department of Chronic Disease and Health Promotion.

Countries will also need to decide what type of screening testing to use, as traditional cytology, visual methods and HPV-specific testing have their pros and cons.

“There are challenges for countries in terms of cost and so on,” said Aguado, “but this vaccine is unique and offers tremendous possibilities.”

Jane Parry, Hong Kong SAR