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In the aftermath: the legacy of measles in Samoa

As Samoa recovers from a devastating measles outbreak, Jacqui Thornton reports on how the epidemic is having long-lasting effects on the country's health system.

Vaila Masimo, 29, sits on the floor of the traditional Samoan *fale* or open house—a one-storey structure open to the elements, looking out onto palm trees and tropical flowers.

Holding baby Ivanajatore in her arms, she glances down at her legs, visibly scarred from measles. Vaila, the wife of a weed cutter, is anxious for her infant. “She’s still not in good health; she hasn’t had good health ever since. I’m worried about her.”

Ivanajatore was one of 5707 people to have measles in the outbreak that struck the tiny Pacific nation of Samoa at the end of 2019. In just three and a half months, 83 died and 1868 were admitted to hospital. Vaccination rates as low as 31% were blamed, with Samoa becoming the exemplar of what can happen in an underimmunised population.

Sheldon Yett, UNICEF representative for the Pacific Island countries, returned to Samoa in March after overseeing the agency’s work there during the outbreak. “I’ve been involved with measles outbreaks all around the world for 20 years in many countries in Africa, Asia, in Europe, and elsewhere”, he says. “But this was something else. The entire country was consumed.” The last case was confirmed on Jan 12. A recovery plan is now underway.

In the short term, the country’s only two consultant paediatricians are going out to district hospitals to follow up on children at risk of respiratory and neurological complications. At the same time, mental health teams, led by the country’s sole psychiatrist, have been visiting bereaved parents and around 300 families of children who had been in intensive care, in order to identify parents at risk of depression and substance misuse, and to prepare them to spot potential signs of delayed

learning or altered behaviour in their child.

But the longer-term focus is a renewed emphasis on public health. This is challenging, given that the population of 198 000 is spread out over four islands, many in remote areas. There are only 0.3 doctors per 1000 people.

“We were a bit slack with our public health in the past 15 years, and that was not right”

The country’s main hospital, Tupua Tamasese Meaole, which bore the brunt of the outbreak, is in the capital Apia, on Upolu island. Another hospital is located on Savai’i, the largest island, and there are six rural district hospitals and four health centres. All 30 general practitioners (GPs) in the country are only available privately. In effect, primary care is largely supplied by the main hospital.

The director general of health at the Ministry of Health, Take Naseri, himself a public health doctor, admits that there was “complacency” in this regard. “We were a bit slack with our

public health in the past 15 years, and that was not right.” He explained how, in the 1970s and 1980s, there was a strong presence of doctors and nurses in the district hospitals, but at the end of that decade, due to a shortage, most of the doctors were brought into Tupua Tamasese Meaole hospital.

In the new plan, a multidisciplinary team consisting of a doctor, nurse manager, district or staff nurse, specialist public health nurse, dietitian, midwife, and environmental health inspector will be sent to the district hospitals and carry out community outreach as needed. Only the most complex cases will be referred to the hospital on Apia.

While Naseri recognises the need for extra funding, he says that this focus on prevention will reduce costs in the longer term, by avoiding complications of diabetes such as kidney dialysis and amputation. “We need to go back to the village level and start from there... with people having easy, affordable access to appropriate care.”

Although this approach is welcomed by the medical community, senior figures say that the measles outbreak



Tom Maguire

has highlighted the need for an overhaul of primary care. During the outbreak, the government shut down routine clinics to prevent people getting infected, and asked patients to visit private GPs, who extended opening times and worked at reduced prices. GPs also assisted in the measles isolation wards, the intensive care unit, and medical wards.

The President of The Samoa Association of General Practitioners, Limbo Fui, says, "With the measles epidemic, it's really been glaringly obvious that we need to partner up. We need to engage with each other and for [GPs] to provide a lot of the care that they [the Ministry of Health] currently provide."

Fui said there have been talks about the GPs providing care for conditions such as diabetes and hypertension, but that vaccination could be taken on too. "We just need to broaden their thinking towards letting us do a lot of the other services."

There is some sensitivity about the roles of doctors in vaccination. Immunisation rates declined in Samoa after two babies died on Savai'i island following measles, mumps, and rubella (MMR) vaccinations that were wrongly prepared by nurses who were later jailed. The Expanded Programme of Immunization was interrupted for 8 months while the incident was investigated and, afterwards, the Ministry of Health ordered that doctors check all babies before immunisations

by nurses. This approach was found to be impractical and taking away doctors from where they were most needed.

However, health officials say that vaccination rates fell for multifactorial reasons and were already declining

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before this incident. WHO data show a dramatic dip in coverage in 2004, which recovers, then drops again from 2014 onwards.

In this period, families were moving to the Apia urban area away from their villages, which had historically supported immunisation through the local, influential women's committees. By far the area worst hit by the outbreak was the capital and its surroundings.

But undoubtedly the MMR deaths played a significant part. Nurses recall that it became very personal: when they did home visits, mothers would chase them away. Nurse manager Lonise Malo Time says, "They would say 'get out of our place, you are killing our babies.' We were not trusted by the public anymore." Palanitina Tupuimatagi Toelupe, the former director general of health who was general manager of the Samoan National Health Service at time of the deaths, called the incident a "wake-up call" for nurses that made them re-examine their practices and accept retraining.

UNICEF's Yett agrees that vaccine hesitancy was still strong at the start of the outbreak, but says that demand grew as the outbreak mushroomed. He adds, "The situation turned very quickly." A compulsory mass vaccination campaign brought rates back up to 95%. To prevent underimmunisation in the future, the government introduced a new law in December requiring all children to be fully immunised before starting primary school, evidenced by a special yellow certificate.

Part of the recovery plan also includes an ambitious project to prevent immunisation gaps by reconciling the three sources of data on vaccination—the family hand-held record, the vaccinator's paper record, and the digital data sent to the main hospital. Data collection has already begun by this year's nursing graduates.

While mothers are being encouraged to get children immunised at hospital clinics, nurses are going out in teams to homes in a catch-up programme, vaccinating the children in the shade of a Ministry of Health minivan. It is not easy—roads are poor and torrential rain frequently cancels these trips.

But now, when the nurses arrive, the mothers welcome them. Malo Time says there has been a shift in what is expected of health-care professionals. She tells the mothers to go to immunisation clinics. But, she adds, "These days the world is moving. They expect the services to be provided in the homes."

WHO's Kate O'Brien, director of the department of immunization, vaccines and biologicals, says that to combat vaccine hesitancy, it is vital that vaccines are made easily available, along with well trained health-care workers. "If clinics are only open Monday 10–12, that is not giving confidence that it's an important thing for families to do."

UNICEF is heartened by the turnaround in approach by Samoa. Yett says that governments tend to want "fancy, expensive, high-tech equipment" for their health departments, but the Samoa experience shows that it is the basics that matter. "We have to invest in basic public health. We have to invest in routine immunisation. If we don't do that, we have a much bigger problem on our hands."

Samoa was one of the first to introduce travel restrictions and quarantine when the COVID-19 pandemic began. As of May 6, the country has had no cases.

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