

## Lessons from the Asian tsunami

The world awoke on 26 December 2004 to the news that a tsunami had devastated many countries in the Indian Ocean. This event is a strong reminder to us that the Pacific is also at risk. This region is prone to earthquake activity under the ocean — and most of the Pacific Islands population live on coastal lowlands. The damage wrought and loss of 2000 lives in the 1998 tsunami which hit the area around Aitape in PNG is proof of the risk faced in the Pacific. Very few earthquakes result in tsunamis. However, when they do, the effects are sudden and severe.

The December earthquake occurred off the coast of Sumatra, and the subsequent tsunami travelled at speeds in excess of 700 km/hour to hit the coasts of Indonesia, Sri Lanka, Thailand, Myanmar, Bangladesh, India, the Maldives, and even as far away as Africa. Not surprisingly, in the initial stages it was difficult to get accurate information from the affected countries. As reports rolled in, it became clear that the province of Aceh in Sumatra, Indonesia, was the area most severely affected. Approximately 220,000 people died in Aceh in just a few minutes. The extent of the ruin was vast. Even before the tsunami hit, earthquake damage toppled many buildings and destroyed infrastructure such as water supplies, roads and communications. When the tsunami hit about 30 minutes later, hundreds of kilometres of coastline were ruined. In parts of the west coast of Aceh, entire villages were swept away. An estimated 480,000 people were left homeless, and began looking for shelter wherever they could find it.

In Indonesia, many of those killed were leaders and government officials, making coordination more difficult. On the health side, of the 480 provincial health workers only a handful reported for work in the first week; a quarter of all health facilities were destroyed or non-functional; the Provincial Health Office, the vaccine cold room and Provincial Public Health Laboratory buildings were all severely damaged. Prior to the tsunami, health and other services in many areas of the province had not been functioning well, as a result of three decades of civil conflict. For the same reason, travel by outsiders into the province had been strictly regulated for 20 years.

In this context, the initial stages of the disaster response had to be extremely well coordinated. The provincial government quickly set up a coordination centre for all sectors, with support from the national level and other provinces. Military contingents were quick to arrive, providing essential aid and situation assessments. Many foreign government teams, international NGOs and other volunteers began to arrive. The various UN agencies were delegated responsibilities for securing food, water, sanitation, shelter, and health services.

The immediate public health needs were to:

- Establish health coordination of the large number of national and international government and non-government organisations arriving in the affected areas, and liaise with the groups responsible for water/sanitation, food and shelter
- Coordinate the conduct of rapid health assessments
- Establish an evolving inventory of available resources
- Coordinate epidemiological and nutritional surveillance
- Ensure preparedness for epidemic/disease control
- Distribute, and promote adherence to, uniform treatment guidelines
- Ensure the availability of essential drugs
- Manage the psychological and social stress among both the affected population and those providing assistance

Coordination was achieved through frequent face-to-face meetings of partners, where information was shared about who was working where, where camps were located, and what their current needs were. We developed a “wish-list”, where members of the health group could identify gaps and seek assistance from others to fill them, as well as an inventory of agencies and the resources. A health sector information officer was positioned full time at the provincial health office to coordinate information sharing.

Because of the huge numbers of people displaced and homeless, it was a challenge just to locate them all. Technology was used to good effect: aid workers used GPS units to establish the position of camps and other sites. This information was mapped and distributed among the coordination group. The mobile phone network was repaired as a matter of urgency, and relief workers were then able to use text messaging to remain in contact, at least in the main urban areas.

WHO and the Ministry of Health (MoH) took the lead for disease surveillance and response. Because the local capacity was so severely reduced, this had to be created essentially from scratch. We quickly implemented a reporting system covering diarrhoeal diseases (cholera, typhoid, shigella), mosquito-borne diseases such as malaria and dengue fever, acute lower respiratory infections, measles, hepatitis and meningitis, as well as tetanus and wounds/injury for inpatients. Because there was no public health laboratory capacity initially, we provided simple syndromic case definitions, in both Indonesian and English languages. Information was gathered from fixed and mobile clinics and hospitals, run by government, local, national and international NGOs working in the 14 affected districts. This included daily laboratory reporting from the three main towns. Active case finding was conducted in camps wherever possible. Rumours of outbreaks from journalists and the public were also investigated.

Thankfully, no major disease outbreaks occurred. In part this was because most of the displaced population settled into small camps, schools, mosques, sporting grounds and other areas with at least rudimentary sanitation. There were no especially large camps that would have supported the rapid spread of disease.

There were small clusters of measles, dysentery, dengue and jaundice syndrome detected. WHO and MoH staff deployed staff to assist with the response to notifications and rumours. The measles cases were quickly confirmed and this information was used to prioritise areas for immunisation. UNICEF and MoH coordinated a province-wide measles programme for under-15s including vitamin A for under 5s.

The situation in the camps was made worse by the arrival of monsoonal rains in January, the peak time for mosquito-borne diseases. MoH gave approval to use ACT (artemisinin combination therapy) and rapid diagnostic test so that malaria could be quickly diagnosed and effectively treated. A large vector control project was established. As a result, the number of cases was no greater than in previous peak seasons.

Many thousands of people were wounded on the day of the tsunami and a lot of these wounds were not adequately treated. As a consequence, there were over 100 cases of tetanus, mostly in adults. Once health workers realised the extent of this problem, tetanus prophylaxis and management guidelines and drugs were distributed. Identifiable groups, such as workers involved in clean-ups and burials, were immunised and provided with protective boots and gloves.

There were many lessons learned from the Asian tsunami and its response. One of the hardest tasks was to assess the extent of the need and match the generous international response to that need. As often happens in disasters, the need for critical clinical care was

great in the first 1–2 weeks, then quickly dropped off as the injured were assessed and treated locally or medivaced to other sites. However, a number of countries had committed to send field hospitals and acute care teams for months afterwards. After the initial crisis period, the needs quickly move to re-establishing primary health care, with an emphasis on promoting access to clean water, good sanitation, adequate nutrition, and access to health workers for treatment of common conditions such as diarrhoea, malaria, respiratory disease, and reproductive health needs. It is important to provide assistance with a longer-term development perspective. Once the initial phase has passed, this is best achieved by longer-term, consistent and well coordinated inputs, and not by the all-too-common habit of continually “rolling” teams in and out of the disaster area.

Another important lesson was the need to establish strong multi-sectoral coordination at lower levels, such as districts and within camps, to ensure that each area receives adequate support across the full range of needs.

Finally, when the international community hears of such overwhelming humanitarian disasters, there is a natural and admirable desire to want to help in whatever way we can. It is vital to determine from the affected communities what the real needs are and then ask ourselves if the skills and resources we have to offer are really what are most needed.

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