



## The Asian Tsunami: Initial medical response to Banda Aceh

Following a disaster, it is necessary to facilitate an appropriate response. However before any appropriate response can be made, it is essential to get an accurate assessment.

Disasters can be categorised in a number of ways. One system of classification relates to timeline and area involved. A transport disaster is over fairly quickly and is usually constrained in location. Even a large event is relatively easy to assess. By contrast, weather-related disasters such as hurricanes may take some time to occur and be spread over a large area. The assessment is much more difficult due to the widespread nature of the problem and the fact that, in some instances, it is ongoing during the assessment phase. The Asian earthquake and tsunamis of December 2005 were spread over an extremely wide area but were over relatively quickly, although quite severe aftershocks occurred for some time afterwards. The huge area involved made initial assessment extremely difficult.

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The earthquake and tsunami happened on 26 December 2004. Aceh is situated at the western end of Sumatra and was very close to the epicentre of the earthquake. Although major damage and loss of life occurred, very little information was available from Aceh during the next 48 hours. This was primarily due to the destruction of infrastructure, including communication. In addition, at that time, movement into and out of Aceh was tightly controlled and required an internal passport due to the nature of the special administration of the province.

A RAAF team, including a Medical Assessment Team (MAT), was put together at Richmond Air Force base in NSW the

day after the earthquake/tsunami. The initial two C130 aircraft arrived at Medan in western Sumatra late on the afternoon of 28 December. Briefing that night was followed by an early morning departure for Banda Aceh.

The MAT consisted of four personnel. These consisted of an experienced full time RAAF doctor (WGCDR Greg Norman – Commanding Officer 3 Combat Support Hospital), an experienced full time RAAF nurse (WGCDR Geoff Robinson – previously also Commanding Officer 3 Combat Support Hospital) and two RAAF Reserve Specialists in Aeromedical Evacuation and Critical Care (SQNLDR Allan McKillop and WGCDR William Griggs). Both reservists had significant previous civilian and military experience.

The C130 flew over the city prior to landing and it was apparent that there had been a huge amount of destruction. It appeared that roughly one-third of the city was still under water.

On arrival in Banda Aceh, the MAT was met by a local Indonesian doctor who arranged to show us the medical facilities in Banda, ten kilometres away. At that time there was no power, no water and no fuel available.

There were three main hospitals in Banda and the MAT had planned to visit all of them. The first of these was Fakinah Hospital; located about three hundred metres above the high water line it had not been damaged by the tsunami or in any obvious way by the earthquake. Despite this Fakinah had been completely abandoned. There were no patients or staff present. The MAT quickly established that it would be a suitable facility to set up an Australian Field hospital or similar. While a field hospital can be established literally in a field under canvas (called



Evacuation in a truck ambulance.



a 'greenfield' setting) there is a major advantage in using a pre-existing facility. This relates to the eventual extraction. With an existing facility, as the locals return and take on more and more of the workload the field hospital staff can gradually hand over and, by the time they leave, a functioning facility will be left behind. In a greenfield setting when the field hospital leaves, there is only an empty field. Thus the MAT was keen to use existing facilities if possible.

The next facility to be visited was the Zainal Abidin Hospital. This was the main university teaching hospital. Unfortunately, this hospital had not been above the high water line and there had been water through it to a height of over 2 metres. The hospital had sustained some physical damage but at that time the major issues were that it was full of mud and bodies. The wards contained the bodies of patients who had been flung from their beds by the water, slammed up against the walls and died. These bodies had not yet been removed. There was also mud everywhere and some areas where water was still present. It was apparent that this facility would take some time to be returned to any sort of functionality.

During the road trip into the city and between the two hospitals, the smell of decaying bodies was everywhere. Just outside the city proper, a very large mass

grave had been dug and hundreds of bodies were being bulldozed into these. At one intersection within the city itself, a smaller bulldozer was pushing some 50 or so bodies together. When we returned later in the day, this intersection was the scene of a funeral pyre. In other locations, single and multiple bodies were lying on the side of the road. In one area, an above ground cemetery was still under 30 to 50 cm of water. There are various canals throughout the city. Some of these were completely filled with debris to the point where water was not visible. One larger canal had a mass of debris caught up at the base of a bridge. This mass of debris contained at least 100 bodies.

At various places in the city, adults and children were observed collecting water from canals and, in one case, children appeared to be drinking from ground water in an area where there were still bodies lying on the ground. Clearly, the risk of infection from these activities was significant and the situation report back to Australia highlighted these issues and indicated that the most urgent priority was the provision of potable water. This was initially achieved on 2 January 2005 when an Australian army engineering detachment got the initial portable water purification plant functional and began producing 20,000 litres per hour of potable water for the locals. Additional water purification plant, both military and

civilian, followed. Engineering assessment demonstrated that the city's previous water supply system had been badly contaminated by earthquake damage when both sewerage pipes and water pipes had ruptured causing intermingling of black, grey and white water.

Following the second hospital visit, it was necessary to visit Government House to see the senior Government officials. Clearly in a foreign country it is not appropriate to plan activities without the understanding and support of the local officials. The MAT formally met with the senior government officials. They were asked what they would like from Australia. The response was that they wanted one (or more) field hospitals as none of their facilities were functional. They apologised that they were not able to provide any logistic support and in particular could not provide food, water, electricity, transport or fuel. The MAT indicated that these requests should be achievable and asked if it would be possible to get permission to utilise the Fakinah site in the first instance. A senior police officer who was in charge of resources and logistics agreed that Australia could use the Fakinah site. Names and contact details were exchanged.

It is worth noting that during the meeting the local officials indicated that they expected that the death toll in Banda was 10,000. Initial situation reports sent back to Australia by the MAT suggested that the death toll may be more like 100,000. This was on the basis of the damage seen from the air and also the fact that every local that the MAT spoke to, indicated that around half of their friends and relatives were still missing. In a city with a population of over 300,000 it seemed likely that the 10,000 was a significant underestimate. The final estimated death toll for Banda was over 100,000.

Following completion of the meeting with the Government officials, there was not sufficient time left to visit the third hospital – Kes Dam Hospital – as the C130s were due to depart. It had been decided that, because of security



Triage Tent.



issues, none of the Australians would stay overnight in Aceh. On return to the airport, there were many locals who were keen to leave the region. Both of the C130s were loaded with refugees who were then flown to Medan.

It was apparent that the few hours on the ground were not sufficient to provide detailed and guaranteed accurate assessments. However, the use of extrapolation and best guess provided a situation report that was, in retrospect, surprisingly accurate. It was also important that this information gathering continued over the following days and weeks.

Situation reports sent out in this early phase needed to include not just recommendations and requests for more resources, but also as much as possible of the raw data on which these requests were based. This is because the people charged with providing additional resources can have potentially conflicting requests from different areas. If three different areas all ask for a resource of which there is only one immediately available, there is a need to triage where that resource is used. To do this, it is necessary to provide the raw data so that comparisons of relative need can be made. In this case, the MAT had no idea of the magnitude of response potentially required in other areas affected by the tsunami including Thailand, Sri Lanka, the Maldives and other parts of Indonesia.

It was also clear that the people further back from the front lines may have had

resources available not immediately visible to the personnel at the coal face. In this case, the MAT was not initially aware that Australian civilian teams had been activated and would be part of the early response. The MAT was also not aware of what participation there would be from other countries. Thus, situation reports should contain as much initial data as possible. Written reports are better than verbal and the use of images can also be valuable in conveying information.

Subsequently the MAT was separated and undertook varying roles but continued to provide information back to the command and control system back in Australia. Additional detailed reports were sent over the next week or so. The situation was very dynamic during that time with multiple countries sending resources with varying degrees of coordination.

One MAT team member was involved in vital coordination at Kes Dam Hospital between the Australian military medical resources and the local Indonesian medical people who had begun to return. Another team member became involved in the establishment and coordination of a multinational triage facility at the Banda Airport for patients brought in by US Navy helicopters from various locations down the western coast. He also established a location for an aeromedical staging facility for transport of patients from the rapidly filling Banda hospitals to other facilities in Medan and subsequently assisted in aeromedical evacuations to Medan. A

third member of the team initially acted as an Aeromedical Evacuation Operations Officer in Medan before handing over this role and coming forward again to Banda to assist with ongoing aeromedical evacuations. The fourth member had to return to Australia on 1 January.

The evacuations to Medan involved mainly patients with limb injuries and, in many cases, amputations. In addition to this, there were some with pneumonia from water immersion and even three with burns from a house fire caused by the earthquake. There were roughly 15 to 20 patients in each evacuation sortie.

The locations at the airport became a problem in the second week when large amounts of rain began to fall. Tents and the bare ground on which they had been established became soaked and the risk of disease and OHS risks increased. After returning home with a productive cough one of the MAT members had a chest X-ray, which revealed pneumonic changes. No organism was grown and it resolved with antibiotics.

In the early phases, the MAT felt there was a high risk of infectious disease problems and early requests include this issue and the potential need for expert public health and infectious disease support. The early establishment of the potable water supply and the provision of expert support may have gone some way towards minimising this issue, which eventually did not appear to reach the magnitude first feared.

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