

Operation Bali Assist

The Australian Defence Force response to the Bali bombing, 12 October 2002

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OPERATION BALI ASSIST was the Australian Defence Force evacuation of injured Australians and other foreign nationals after the Bali terrorist bombing. This operation was the largest Australian aeromedical evacuation since the Vietnam War. It relied on military and civilian cooperation to move the critically injured initially from Denpasar to Darwin, and then on to specialist units around Australia. (Reprinted with permission from *The Medical Journal of Australia* 2/16 December 2002; 177: 620-623)



“OPERATION BALI ASSIST” was the name given to the Australian Defence Force (ADF) evacuation of injured Australians and foreign nationals after the Bali terrorist bombing on 12 October 2002. The operation involved the triage, stabilisation and evacuation of 66 critically ill patients from Bali to Darwin over 21 hours. Subsequently, the patients were stabilised in Royal Darwin Hospital (RDH) and then, under direction of Emergency Management Australia (EMA), transferred to various centres in Australia.

The Royal Australian Air Force (RAAF) transported 35 patients in four separate missions and the operation involved 50 medical staff.

Deployment

13 October 2002, 0700 EST: The RAAF was tasked by Headquarters Air Command to send a Hercules C-130 transport aircraft to Bali for medical evacuation of Australians injured in an explosion the previous night. The initial information suggested that up to five patients might be seriously injured, possibly more.

The medical team assembled at the RAAF’s No. 3 Combat Support Hospital at Richmond Air Force Base, NSW, and prepared equipment to be loaded on the aircraft. This included equipment to transport two intubated and ventilated patients, 20 NATO litters (canvas stretchers in a standard size to fit any aircraft) for other patients, four units of locally

sourced blood, and other items essential for an aeromedical evacuation (AME) in a military aircraft.

13 October 2002, 1530 CST: The aircraft arrived in Darwin and the AME team, which included one medical officer, three critical care nurses and three medical assistants, was advised that in Bali there were 15 very seriously injured and 20 seriously injured patients. The team was joined by two Army Reserve specialists (a surgeon and intensivist from RDH), another Air Force medical officer and nurse from RAAF Darwin, and extra equipment to allow the surgeon to perform operations as required. By this stage, a second aircraft was en route to Darwin from Richmond Air Force Base to assist in the evacuation.

Phase I: AME Bali to Darwin, 1930

13 October 2002 to 1400 14 October 2002

Denpasar Airport, 13 October 2002, 1930 CST: The first RAAF aircraft arrived in Bali. The initial plan was to assess patients waiting at the airport and load these for the return flight. However, on landing we were informed that five casualties had just left on a private Learjet to Perth and that the most seriously injured people were at Sanglah Hospital (more than 40 minutes away by road). The medical team

ADF reservists sent in a Hercules C-130



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then split, leaving a medical officer and two medical assistants to prepare an Aeromedical Staging Facility (ASF), while the remainder went to Sanglah Hospital to manage the triage, resuscitation and movement of patients to the ASF. Three satellite phones were distributed to the medical officers to allow communication on the ground and to relay medical information and casualty estimates to Headquarters Air Command in Australia.

The ASF was situated in the airfield fire section in a hangar housing fire trucks and appliances. This provided shelter, light, electricity, places to hang IV lines, vehicle access, and direct access to the tarmac where RAAF Hercules C-130 aircraft would unload supplies and load patients.

What greeted the medical team at Sanglah Hospital was something they will never forget. The hospital was overwhelmed with injured Australians with severe burn, blast and shrapnel wounds. There were two critical patients: one was a man with 80%–90% burns who was being ventilated by an Australian paramedic from Darwin on holiday; the other had extensive burns and had had a laparotomy for shrapnel wounds to the abdomen.

Denpasar Airport, 13 October 2002, 2230 CST: The first aircraft had to leave for Darwin because of aircrew duty limits (the crew's duty time had already been extended twice). On board the RAAF Hercules C-130 were 15 patients: two critical and 13 relatively stable. One and a half hours into the flight, one critical patient died, despite aggressive attempts at resuscitation. The others thankfully remained stable and on arrival in Darwin were transferred to RDH.

Denpasar Airport, 14 October 2002, 0130: At the ASF in Bali, casualties were pouring in, with up to 30 patients on the hangar floor being stabilised and operated on by medical staff and volunteers. The patients were mostly young, quiet and stoical. There were no complaints or unreasonable demands; on the contrary, most were concerned for their mates.

Denpasar Airport, 14 October 2002, 0430 CST: The second C-130 departed for Darwin with 22 patients on board (two in intensive care and ventilated, six in a serious condition).

Denpasar Airport, 14 October 2002, 0600 CST: A third C-130 arrived with three anaesthetists, extra nursing staff and supplies. It was closely followed by a fourth C-130 carrying an AME team and two anaesthetists. The newly arrived staff were most welcome, and increased the capacity to stabilise patients before flight. Soon after, a fifth C-130 arrived with four more AME members and further supplies.

Airway and circulation assessments, femoral lines, venous cutdowns — a gritty but surreal scene on the floor of a concrete fire hangar in tropical heat, ringed by anxious friends, relatives and interested Balinese emergency service personnel.

Denpasar Airport, 14 October 2002, 0830 CST: The third aircraft was loaded with 16 patients (most critical patients last on – first off) and departed. The fourth C-130 was not far behind, carrying 11 patients and all remaining medical personnel who had been on the ground since the beginning of the evacuation.

Left behind were 11 medical personnel, but no patients. The team resupplied and cleaned the ASF and consulate, and two medical personnel left the airport to check that no injured Australian or foreign national had been left behind in the hospitals or hotels. In the Denpasar Airport civilian terminal, large numbers of tourists evacuated by Qantas were checked for injuries requiring potential AME. Over the next few hours, only two more patients arrived at the ASF (one with three surfboards!).

Denpasar Airport, 14 October 2002, 1400 CST: The fifth C-130 departed with all medical personnel, two patients and a small number of uninjured Australians (and three surfboards).

Sixty-six patients were evacuated out of Bali in 21 hours using five Hercules C-130 aircraft and 34 Australian permanent and reserve military medical staff. An ASF was established to allow for stabilisation, resuscitation and field surgery to the injured people awaiting transport on military aircraft. Importantly, the medical staff were able to communicate through satellite phone to military headquarters to allow appropriate medical staff and



supplies to be brought to the ASF and to coordinate the evacuation. Civilian retrieval companies, including Qantas, complemented the evacuation.

Phase 2: AME Darwin to various major burns units, 2400 13 October 2002 to 1700 15 October 2002

The strategic AME component of Operation Bali Assist began while the first phase was ending. Civilian retrieval organisations (Royal Flying Doctor Service, Medical Emergency Adult Retrieval Service, CareFlight, and Retrieval Team Royal Adelaide Hospital) had flown to Darwin and began to transport ventilated patients to various hospitals throughout the country. This activity continued into the night of Monday. We focus on the ADF activities.

Darwin, 14 October 2002, 1300 CST: The initial directive from Air Command was that there would be two strategic AMEs: one to Perth and the other to Brisbane, then Sydney and Melbourne. However, this soon changed, with the news that RDH and EMA had requested four strategic AMEs that evening: to Perth; to Adelaide then Melbourne; to Brisbane; and to Sydney. These were to be conducted in quick succession and would require a high level of logistical and personnel support.

Darwin, 14 October 2002, 1600 CST: The first meeting was held with the staff from the RDH to determine the numbers of patients to be transferred to each of the capital cities, the priority of the patients, and how these patients were to be transported. A difficulty at this meeting was that patient priorities were still changing because of ongoing resuscitation and initial surgery. However, it was resolved that only the AME to Perth would transport ventilated patients; the other AME would not do so unless necessary.



At the meeting, a rough patient manifest was determined for the AME to Perth. This included 12 patients, with burn surface areas between 5% and 40% and with varying degrees of blast and shrapnel injury. Two of the 12 patients were intubated and ventilated.

It was decided that the most efficient means of transferring patients from RDH to the C-130 Hercules was by the RAAF ambulance bus. This bus is capable of carrying patients on NATO stretchers and can allow for transfer of a large number of patients. Volunteer crews from RAAF Darwin were responsible for loading and unloading the bus and aircraft under the direction of medical personnel.

Darwin, 15 October 2002, 0150 CST: The first of the AMEs departed Darwin. The six-hour flight to Perth was uneventful until two hours out from Perth, when a ventilated patient suffered a cardiac arrest. Resuscitation efforts by the staff on board were successful. All patients were eventually transferred to Royal Perth Hospital.

Darwin, 15 October 2002, 0305 CST: The second AME departed for Adelaide. On this flight were six patients with burn areas ranging from 15% to 50%, two patients with shrapnel injury, and two family members. None of the patients had been previously intubated and ventilated, but there was concern that one patient might have needed ventilatory support during flight.

Also on this flight were three members of the Royal Adelaide Hospital retrieval team who had been working for the previous 24 hours. All patients were transferred to their destination medical facilities without incident.

Darwin, 15 October 2002, 0530 CST: The third AME (seven patients with various blast, burn and shrapnel injuries) departed for Brisbane. By that stage of the operation, medical supplies and medications were beginning to run low and equipment issues began to appear. A late request from RDH to transfer a ventilated patient was accommodated; however, when reviewed, the patient was deemed to be too unstable for the four-hour mission to Brisbane. The medical staff on this flight consisted of two RAAF Specialist Reserve anaesthetists, one Navy Reserve anaesthetist and one Army Reserve anaes-



The handover and transfer to Sydney

thetist, all proceeding home following the first phase of the operation. Without these Reserve personnel, the mission would not have been conducted.

All members of the team remaining in Darwin were beginning to show obvious signs of fatigue by the time the third AME departed. The fourth AME was delayed while patients were prepared, and did not depart Darwin until about 1100 CST on Tuesday. On board the final flight were the bulk of the initial crew from RAAF Base Richmond who had mobilised initially, additional Reserve specialists and a CareFlight member who had been stranded in Darwin. Eight patients with various areas of burns and two family members were transferred on this flight.

In all, 35 patients were transferred to the four capital cities over 16 hours on Tuesday, 15 October 2002. Crews that had been pushed to the limits of fatigue, having been working for an average of 34 hours with only broken sleep, undertook this feat and continued to provide optimal care for their patients until the work was completed.

The second phase of Operation Bali Assist enabled the load to be shared among burns units across Australia. It ensured that most patients would be treated in their home State and it allowed the RDH the ability to cope with the numbers of injured patients for the time necessary to

Darwin patients awaiting transfer to Sydney



conduct vital resuscitation before resources became stretched.

Discussion

A terrorist act causing large numbers of critically injured Australians in a country where the provision of medical services differs from our own provided unprecedented challenges. This tragedy required a response not previously conducted by Australia.

Burns required prompt resuscitation and expert surgical management. It was recognised that the best response for these victims was to bring them safely to Australia and then to specialist burns units around the country. Military and civilian agencies, their planners and operators worked seamlessly to meet this challenge. No single agency could have conducted the whole operation. The tragedy focused the resources of the nation to give the best outcome for injured Australians.

The AME had unique problems. There were large numbers of critically injured patients, necessitating large numbers of Specialist Reserve support, significant quantities of oxygen, IV fluids, blood products, drugs (morphine, ketamine, midazolam, muscle relaxants, antibiotics and Tet Tox) and critical care equipment (oxylog, Propaq monitors, etc). In the short response time, these were sourced from ADF facilities in Sydney and Darwin, and local hospitals in Sydney, Darwin and Adelaide. Each C-130 aircraft arriving in Bali brought more supplies, until the surplus allowed some excess fluids to be sent to Sanglah Hospital on our departure from Denpasar.

The prompt response and support of ADF Specialist Reserve allowed expert medical care to be projected with this operation. As always, they provided experienced clinical judgement, procedural skills and support to the permanent medical force.

The RAAF has identified areas for future improvement to maximise the capability we can project. These mainly focus around critical care equipment update, and training and alliances with civilian critical care services.

Operation Bali Assist was successful because of the united and dedicated response of all people involved. So often in tragedy, individuals and organisations exceed normal expectations; this was no different.

The ADF, EMA, the Department of Foreign Affairs and Trade, RDH, burns units around Australia and the Australian public were all crucial to the best outcomes for the victims of terrorism in Bali. With this operation comes the responsibility to ensure Australia's capability to react to such tragedies is enhanced. The possibility of future acts of terrorism ensures its maintenance. □