

Developing internal and external emergency plans practical lessons from Royal Darwin Hospital

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Abstract

Within the current climate, all health care facilities need to have internal and external emergency plans made available to staff in an easy to follow format. In 2001 the comprehensiveness of the Royal Darwin Hospital Emergency Procedures manual received national recognition when Royal Darwin Hospital won the Federal/State Government stream in the post disaster category of the *National Australian Safer Communities Award from Emergency Management Australia*. In 2002 the external emergency plans at Royal Darwin Hospital (RDH) were activated to deal with a number of victims of the bombings in Bali. This article outlines the process involved in developing the emergency plans that were essential for Royal Darwin Hospital to be able to effectively respond during what is now known as *Operation Bali Assist*.

Introduction

Royal Darwin Hospital is one of Australia's most remote tertiary referral centres—a 300 bed hospital facility located in Darwin in northern Australia. The hospital is closer to Indonesia than to any other Australian tertiary healthcare facility. It was because of its proximity to Indonesia that about 100 patients were evacuated to Darwin following the bombings in Bali on 12 October 2002.

In recognition of the location of Royal Darwin Hospital and the significance of its proximity to south-east Asia, on 20 September 2004, the Prime Minister Mr John Howard announced plans to make Royal Darwin Hospital a national centre for critical care and trauma¹ through the allocation of an additional \$50 million in funding. This funding was further enhanced to the tune of \$16.5m in the Federal Budget of 2005.

To date, much has been written regarding the response by Royal Darwin Hospital to dealing with the bombings that occurred in Bali in October 2002. There can be no question that the response was efficiently and effectively carried out. However, for Royal Darwin Hospital staff to be able to respond to this unprecedented type of emergency within the Australian health care system, it was important

that a disaster plan had been prepared which supported such a response.

Royal Darwin Hospital Emergency Management Committee

The Royal Darwin Hospital Emergency Management Committee has responsibility for developing and monitoring internal and external disaster plans. Prior to the Bali incident membership of the Emergency Management Committee was comprised of several hospital executive members as well as medical, nursing, engineering and administration representatives. The Committee met on a monthly basis to look at emergency management issues including developing policies and procedures to deal with all types of internal and external emergencies. Internal emergencies are those involving fire and evacuation, personal threat, bomb threats, medical emergencies and mass casualties, with external emergencies covering natural disasters such as cyclones, earthquakes and floods. The Emergency Management Committee reviewed internal and external disaster plans on a biennial basis, with the development of emergency plans being supported by training of various Committee members. The requirement for

1 Kirk, A. (2004). PM plans to make Royal Darwin Hospital a centre for critical care and trauma. The World Today—Monday, 20 September, <http://www.abc.net.au/worldtoday/content/2004/s1202989.htm>



Photo: Peter Farkas

Intensive Care and Emergency Department facilities were doubled and trebled during the emergency

Royal Darwin Hospital to be prepared for the annual cyclone season and to be able to respond to any emergency arises from the isolated location of Darwin.

Testing and revising the plans

The possible threat to Darwin from cyclones set the stage for emphasising the importance of having emergency plans, with the Emergency Management Committee needing to make sure that any plan could work during such an emergency.

Prior to the Bali incident the Emergency Management Committee at Royal Darwin Hospital had several opportunities to test emergency plans when the hospital prepared for the annual cyclone season. In January 1997 existing plans were activated and an Emergency Command Centre was established when *Cyclone Rachael* threatened the Northern

Territory coast. In January 1998 the emergency management plans were again tested during the Katherine floods. In December that year, the northern coast was threatened by *Cyclone Thelma*, which had been declared a Category 5 cyclone. This was the strongest cyclone to threaten the Northern Territory coast since *Cyclone Tracy* which had wrought mass devastation to the city of Darwin in December 1974.

The proximity of *Cyclone Thelma* required full activation of the Royal Darwin Hospital Cyclone emergency management plan. This involved establishing a central command centre from which the emergency plans were managed and monitored.

The emergency management plans were further tested in 1999 when more than 2000 residents from East Timor were evacuated to Darwin. After each of these threats the Royal Darwin Hospital Emergency plans were evaluated

for their effectiveness and further refined by the Emergency Management Committee.

The evaluation process required key hospital and health department staff to attend meetings with various representatives of the Emergency Management Committee, with the evaluation process culminating in the development of a report identifying where the plans could be improved. The Emergency Management Committee then reviewed the report and identified where plans could be improved and made changes accordingly. The use of continuous quality improvement processes proved to be essential for ensuring that plans were kept current, relevant and at the forefront of staff awareness.

In late 1995 Carol Mirco, as Nursing Director of the Division of Surgery at Royal Darwin Hospital and member of the Hospital's Emergency Management

Committee, attended a Disaster Medicine Course conducted by the Australian Emergency Management Institute at Mount Macedon. This well structured course introduced participants to the broad principles of emergency management and the importance of preparedness. Previous Emergency Management Committee members had attended similar programs.

Carol and other Committee members had also attended emergency management training programs including the *Introduction to Emergency Management* program conducted by the Northern Territory Emergency Service and the *Recovery Management* program conducted by the Australian Emergency Management Institute. The need for senior personnel to receive practical training and education in the development of emergency plans is an essential element in providing the groundwork for these key individuals to be able to develop effective responses to internal and external emergencies.

It is important that members of the Emergency Management Committee participate in emergency management training exercises with other Government departments and Non-Government Organisations. In addition to developing plans, the Emergency Management Committee met with other services within the Department of Health and Community Services (formerly Territory Health Services), the NT Emergency Service and other key personnel including the NT Police, the Department of Defence, St John Ambulance NT and various private enterprises, including the Darwin Airport Authority and off-shore gas suppliers. These meetings allowed Committee members to participate in table-top exercises to examine all elements of preparedness and the Hospital's response capability. Having key personnel participate in table-top exercises, helps familiarise staff with responses to emergencies and keeps them

up-to-date with disaster plans, preparation and response. Table-top exercises provided members of the Royal Darwin Hospital Emergency Management Committee with information about the possible types of external emergencies that could occur and emphasised the importance of Royal Darwin Hospital being able to respond effectively given its proximity to south-east Asia and its isolation from other capital cities within Australia. These meetings provided opportunities for members of the Committee to meet key contacts and establish links with external personnel.

Early in 1998 the Emergency Management Committee assumed responsibility for revising the plans following the Hospital's response to the Katherine flood. Similarly, the plans were evaluated following *Cyclone Thelma*, with meetings held and reports being submitted by each department outlining issues to do with the plan and the feasibility of proposed activities. The effectiveness of the functioning of the command centre operations was also examined. Each of these evaluations identified some key elements of the plan that worked well, and highlighted things that may have worked in theory but did not work in real-life circumstances.

Given recent experiences, it was recognised that emergency plans needed to be developed which outlined the role of Hospital Executives as well the role of managers and staff within each department. As a result all emergency management plans were updated and standardised. This involved developing plans for each service area and giving managers responsibility for reviewing the plan for their service area, which was then incorporated into the overall plan. The Emergency Management Committee found that having one or two key personnel responsible for overseeing the development of plans ensured that plans remain consistent throughout the organisation and that the plan for each service area is compatible with the plans for all other services.

After *Cyclone Thelma*, the process of evaluation and development took approximately four to five months to complete, with the final plans being endorsed by the Hospital Executive before being distributed to service areas. Existing internal and external emergency plans were developed using a standard framework. Each plan, whether cyclone, bomb threat or fire, was prepared using the same simple format, thereby ensuring that



Photo: Peter Farkas

Defence forces assisting with the relocation of patients to other States



Photo: Peter Farkas

The Hospital had key personnel, additional staff and co-opted facilities ready for the influx of survivors

managers only needed to become familiar with one format irrespective of the type of emergency.

Some of the key issues discussed by the Emergency Management Committee included:

- developing standardised plans using one framework;
- identifying what is essential in a plan and the level of detail required;
- ensuring local work areas have their own plans;
- planning ongoing emergency training programs;
- nominating who should have access to the Command Centre; and
- organising rest relief for hospital and emergency command centre staff.

While having high level plans is extremely important, it is essential that individual departments have their own plans. The review of the emergency management plans involved having a detailed description of what each area should be doing at each stage of an emergency. Once developed, all plans need to be visible and staff need to be regularly reminded about the plans, with an on-going education program for staff about what should happen in a disaster. To this end NT Emergency Services conduct education sessions at Royal Darwin Hospital prior to each cyclone season.

As could be expected, having an effective communication strategy is central to any plan, as is identifying key staff that should be a part of the command centre and how these roles would be shared over a prolonged period of time.

Following endorsement a copy of all emergency management plans were located in the hospital's Command Centre, with copies also being provided to external agencies.

In 2000 these plans were highly commended by the Australian Council on Healthcare Standards (ACHS) Accreditation Team. In 2001 the comprehensiveness of the Emergency Procedures manual received national recognition when Royal Darwin Hospital won the Federal/State Government stream in the post disaster category of the *National Australian Safer Communities Award from Emergency Management Australia*².

Having these emergency plans activated during previous threats helped Royal Darwin Hospital when the external disaster plan was put to the most exhaustive test in October 2002.

Issues to be considered when developing a plan

When developing the emergency management plans for Royal Darwin Hospital, the Emergency Management Committee considered the following issues:

- identifying personnel who are required within the Central Command Centre;
- identifying an internal and external communication strategy;
- identifying links with external personnel/agencies;
- determining what non-essential services can be deferred/cancelled;
- determining which patients can be discharged—to where and how;
- identifying the role of specialists and senior nursing staff and the establishment of a chain of command;
- allocating areas where patients can be treated and the resources required for that area;
- identifying what support staff will be required including administrative staff, wardsmen, cleaning, catering and engineering staff;
- organising additional linen, pharmacy, stores, and food supplies;
- providing rest relief for staff in the situation where the disaster threat extends over a prolonged period of time;
- managing relatives and identifying an appropriate area for the location of relatives;

2 Emergency Management Australia (2001). *Darwin Hospital emergency response plan wins Award*.
<http://www.ema.gov.au/agd/ema/emaInternet.nsf/Page/RWP07C36E254C49EF60CA256CDF000DE70E?OpenDocument>

- managing the media;
- identifying what additional security measures will be required during any mass emergency situation;
- identifying a strategy for debriefing staff; and
- embedding a whole-of-facility review process for any plan after the disaster situation has passed.

Depending upon the type of emergency, activating a disaster plan involves identifying what non-essential services have to be cancelled or deferred. This may include elective surgery and outpatient services.

Any effective plan needs to deal with the aftermath of the incident including providing opportunities for staff to come to terms with the incident and the need for formal and informal debriefing activities.

The final thing to consider after 'stand-down' is declared when to return the facility to 'normal business'. Staff may require respite before returning to normal activities, with staff given time to refresh and come to terms with what they have just dealt with.

The Plan in action

Successful emergency responses "don't just happen." Successful responses are in fact, the product of extensive planning, practice and preparedness—of testing and re-testing capacity and resource. They are the product of communication and collaboration, and expecting the unexpected while maintaining core business activities. Such was the case when the Royal Darwin Hospital became a critical component of what is now known as *Operation Bali Assist*.

The template for the response was the plan formulated well in advance of the tragedy. While the plan was tested and reviewed, the real test arose with the terrorist bombing in Bali 2002.

The process

At approximately 11pm (Bali time) on the evening of Saturday 12 October 2002, a series of terrorist explosions targeting civilians, including a large number of Australians, were detonated. Early the following morning, and without prior warning, a single Royal Darwin Hospital Emergency Department presentation raised an invaluable alert.

A young man, who had been at Kuta Beach's, Sari Club the evening before, arrived unannounced with injuries sustained in "... an horrific bomb blast." To the amazement and horror of staff, he spoke of climbing across debris and dismembered bodies, and of making his way to the airport to catch the "... last civilian flight" to Darwin. While his injuries were relatively minor, his harrowing story was one of terror, of death and mayhem, of chaos and danger involving large numbers of Australians. All this within two flying hours of Darwin.

Critically, and without hesitation, the treating clinicians immediately recognised the possible implications for the hospital, and alerted senior administrative staff. Immediately, the External Disaster protocols encompassed within the Emergency Procedure manual were tentatively activated. Bed managers assessed occupancy levels and support services were alerted. Specialist

teams quickly began to assess the potential of "freeing up" beds, and a range of alternatives were considered and communicated should the need arise.

At 10:00am Darwin time, hospital administration received a formal call from the Department of Defence, advising that a C-130 Hercules aircraft from RAAF Headquarters in Sydney was to depart for Bali, via Darwin, with a partial medical crew. Advice was also given that certain reservist Hospital staff would be "called up" for duty, and specific supplies requested. The national plan, at this stage, however, seemed intent on evacuation to major centres throughout Australia, rather than Darwin.

By 1pm on Sunday 13 October 2002, following discussions with the NT Disaster Committee, and the Chief Minister, a national decision was reached that Darwin would be the "first port of call" for survivors evacuated by a number of C130 aircraft. Shortly after, the Northern Territory and Royal Darwin Disaster plans were formally activated.

From a hospital perspective much of the work had already commenced. Key personnel were already in place, and others were advised of the impending situation. Senior management assembled in the hospital's designated disaster control room, and a wide range of staff was recalled for duty.



Photo: Peter Fairkas

Patients being triaged and treated in the Emergency Department

A decision was made to defer all pending elective activities and to fully use the resources of the co-located Darwin Private Hospital. This latter decision was of critical importance, providing the opportunity to transfer appropriate patients and create a 60-bed surgical receiving ward in the public facility.

While providing a range of specialist services, the Hospital's Burns Unit had a capacity for only four patients, the Intensive Care Unit for between six to ten, and the "dated" Emergency Department, had only three resuscitation beds. The capacity of the Intensive Care Unit was artificially expanded to accommodate up to 20 patients, while the Emergency Department expanded into adjoining clinic areas in preparedness.

As the day progressed, close communication was maintained with emergency services and a variety of local government and non-Government agencies. It became obvious that Defence, Customs, the Federal Police, and a number of national bodies were also critical to the Hospital's response. A delay of more than 24 hours between the bomb blasts and the arrival of the first casualties was a valuable asset, only in so much as the opportunity was seized to enhance preparedness.

At 1:40am on Monday 14 October, the first 14 victims arrived (tragically a fifteenth had died en-route). Over the next 12 hours, more than 60 critically injured victims arrived in four waves at the Royal Darwin Hospital Emergency Department. Of those casualties, 52 were considered to have burns severe enough to require admission to a major burns unit and virtually all the victims had multiple trauma.

While best efforts had been made in Bali, patients were significantly under-resuscitated. Little was available in the way of resources or equipment, and immersion in the chlorinated swimming pools of

hotels was often the only treatment for the severely burned. The efforts of those on site were certainly bolstered by the arrival of the first RAAF Team early on Sunday evening. Clearly, critically injured victims had now waited for many hours, receiving little but the most rudimentary attention.

The injuries sustained were those of blast and shrapnel, of crush and firestorm, of shock, sepsis and dehydration, and later on of metabolic and renal challenge, and of burns infections caused by multi-resistant bacteria not normally seen in Darwin. While at one point, 18 simultaneous trauma resuscitations occurred in the small Emergency Department, the staff were never "out resourced." Theatres worked around the clock, and every patient was meticulously logged and tracked by the administrative staff. While Emergency and Intensive Care teams triaged, assessed, and resuscitated; surgeons operated, and physicians restored metabolic balance.

The response was that of a professional team, and within 36 hours of commencement, a planned evacuation to other centres throughout the nation had commenced.

By late on the evening of 15 October 2002, only seven patients remained within the hospital, with an additional trickle presenting over the next few days.

With the departure of the last major cohort of patients, an almost anti-climactic mood fell upon the Hospital. Day to day activities almost seemed mundane and trivial as so much had happened in such a short period of time.

The next challenge had only just begun. Debriefing and counselling were addressed, and a tired workforce was rested.

Of interest and significance, is that during this turbulent period, the non-related, acute activities

of the hospital continued, almost uninterrupted, and immediately following the response, it was "business as usual."

Following the Bali bombings response, a full day workshop was held to assess aspects of the response, both strengths and weaknesses. The review process also encompassed aspects of debriefing for staff involved.

The plan itself had provided a robust inter-hospital template, however, it was shown that communication with some external agencies could be improved, and consequently this has been enhanced.

Conclusion

Of course no incident of such magnitude will always go exactly to plan. Ongoing training and education in emergency responses is essential for Emergency Management Committee members to develop a broad understanding of disaster preparedness and response, with testing of plans and staff training also being required to ensure a planned, efficient and focused response can be made to any real or potential internal or external hospital emergency.

Authors

As Nursing Director for the Division of Surgery at Royal Darwin Hospital, Carol was Chair of the Emergency Management Committee which oversaw the development of the internal and external emergency plans that were established prior to the bombings in Bali in 2002. In 2004 while working as Principal Nurse Consultant with the NT Department of Health and Community Services, Carol was recognised for her involvement in the development of these plans as winner of the Telstra Business Women's Awards TMP/Hudson Community and Government Category. After working for the past few years in project management Carol is currently employed as Manager of the Nurses Board of the ACT.

Dr Len Notaras has been the Medical Superintendent of the Royal Darwin Hospital for more than ten years, and Senior Medical Director in the Northern Territory. He has a range of career experiences and qualifications which include the military, law, and medicine, and was involved in the Newcastle earthquake response, the 1999 Timor response, and more recently, as regional Medical Disaster Coordinator, in the preparations for tropical Cyclone Thelma.