SEVERE BURN INJURY ANNEX to AUSTRAUMAPLAN (AUSBURNPLAN)

1. INTRODUCTION

1.1 The *Severe Burn Injury* annex is Annex A of AUSTRAUMAPLAN (the *Domestic Response Plan for Mass Casualty Incidents of National Consequence*) and as such should be read in conjunction with that plan.

1.2 AUSTRAUMAPLAN acknowledges that major trauma injuries may include severe burn injuries, and that the national management of severe burn injuries requires specific considerations for effective response and optimal care.

1.3 AUSBURNPLAN aims to detail the national response and recovery arrangements for an incident resulting in mass casualties with severe burns. The objective is to achieve the best possible outcomes for the individuals affected and minimise the impact of a major burns incident on the health system. By coordinating the distribution of burns victims and the response to an incident, casualties will be provided with better specialist burns care.

1.4 The *National Response Plan for Mass Burn Casualty Incident* (AUSBURNPLAN) was initially released in response to a series of terrorist incidents, including Bali (2002 and 2005), Madrid (2004) and London (2005). All four events highlighted that many casualties from the incidents suffered severe burn injuries as well as other multiple system trauma. Indeed, in the 2002 Bali bombing, 62 casualties were admitted across Australia, occupying all adult burn beds. This additional casualty surge occurred on the background of normal operations where severe burn casualties from other incidents also required care.

1.5 The most likely burns hazards identified for Australia are fires and explosions in regard to transport, mass gatherings, high-density urban dwellings, mining, offshore oil rigs and acts of civil disturbance and terrorism. Natural disasters such as rural fires and earthquakes are also prominent.

1.6 Historical analysis of terrorist events, where improvised explosive devices (IEDs) have been used, consistently demonstrates that up to 10–15% of the total live casualties have severe burn injury and other multiple trauma injuries requiring critical care/tertiary level burn services.

1.7 On the basis of scenario planning and historical precedent, in a worst case scenario, with 2000 live casualties, Australia may have to manage a surge of up to 300 severe burn injured casualties. This will significantly challenge existing systems. This acute surge will occur in addition to existing patient activity (national incidence approximately 7 per day), many of who require a protracted length of stay.

1.8 AUSTRAUMAPLAN acknowledges that the primary responsibility for managing the impacts of Mass Casualty Incidents (MCI) within their respective state and territory lies with the state and territory governments. AUSTRAUMAPLAN will operate when a Mass Casualty Incident of National Consequence (MCINC) occurs. A MCINC is

defined as a MCI that requires consideration of national level policy, strategy and public messaging or inter-state and/or territory assistance.

1.9 A state or territory Mass Burn Casualty Incident is one where the routine resources of the affected state or territory burn service are overwhelmed, but is able to be managed through a surge capacity in its existing infrastructure (i.e. burns can still be managed in a burn unit by trained burn staff). Under the framework of the AUSTRAUMAPLAN plan this is analogous to a MCI.

1.10 An MCI usually involve scenarios where up to 100 people may suffer minor burn injuries and up to 10 people will suffer severe life threatening burn injuries. Most minor injuries will be managed at local emergency facilities and are discharged from hospital in 24 to 48 hours.

1.11 A surge capacity of 10 to 20 severe burn casualties can be managed by larger states and territories. Further increased capacity in these numbers will depend on the state or territory's capacity to expand during such an emergency.

1.12 For an incident involving severe burns victims, the threshold for an MCINC may be reached if the number of casualties with burns exceeds 20, however, this number could be reduced to 10 if the majority are burns >25% TBSA or are triaged Priority 1 (RED), depending upon the capacity of the state or territory at the time of the incident.

2. AIM

2.1 The aim of AUSBURNPLAN is to detail the national response and recovery arrangements for an incident resulting in mass casualties with severe burns.

3. SCOPE

3.1 AUSBURNPLAN is implemented when national coordination of a MCINC which includes severe burn injuries is required within Australia, or in response to a major burns incident impacting on Australians overseas.

4. ACTIVATION OF PLAN

4.1 Activation Authority

4.1.1 Authority to activate AUSBURNPLAN rests with the Chair of the Australian Health Protection Committee (AHPC) (or nominated delegate).

4.2 Triggers

4.2.1 As detailed under section 4.2 of AUSTRAUMAPLAN, the key triggers for use of AUSBURNPLAN under an activated AUSTRAUMAPLAN may include:

- the occurrence of a significant domestic MCI with severe burns;
- notification by an affected jurisdiction that assistance in managing the health aspects of the MCI may be required;
- activation of OSMASCASSPLAN; and/or

- other circumstances as deemed necessary by the AHPC.

4.2.2 The key triggers for activation of AUSBURNPLAN are consistent with the threshold noted in AUSTRAUMAPLAN. The threshold for an MCINC involving severe burns may be reached with few patients, for instance 20, depending upon the capability of the state or territory at the time.

4.3 Execution

4.3.1 As detailed under section 4.3 of AUSTRAUMAPLAN.

4.4 Linkages to National Level Plans

4.4.1 AUSBURNPLAN, as Annex A of AUSTRAUMAPLAN, operates under the auspices of the *National Health Emergency Response Arrangements* (NatHealth Arrangements) *2009*.

4.4.2 If an overseas incident occurs that results in severe burns casualties, AUSBURNPLAN can operate under the Attorney-General's Department's National Response Plan for Mass Casualty Incidents involving Australians overseas (OSMASSCASPLAN) (as AUSBURNPLAN is an annex to AUSTRAUMAPLAN, AUSTRAUMAPLAN would need activation in these circumstances).

5. PREVENTION, PREPAREDNESS AND RECOVERY

5.1 Prevention

5.1.1 Under the Australian Constitution, prevention is largely a state and territory responsibility. Prevention of burn mass casualty incidents is not within the scope of AUSBURNPLAN.

5.2 Preparedness

5.2.1 As with preparedness for MCIs outlined at clause 7.2 of AUSTRAUMAPLAN, the majority of mass burn casualty incident preparedness activities lie with the respective state and territory. These activities should include preparedness training specific for first response in rural settings. Additional activities specific to AUSBURNPLAN include:

- development of interoperable state and territory mass casualty burns plans, including identification of a state or territory jurisdictional burn coordinator;
- development and collation of state and territory burn asset and facility registers (Appendix 2), including bed numbers and surge capacity; and
- development and maintenance of deployable state and territory and Commonwealth assets.

5.2.2 National elements of mass burn casualty incident preparedness include the structure to facilitate AUSBURNPLAN. Activities specific to AUSBURNPLAN include:

- national level mass burn casualty incident plans, mechanisms and arrangements;

- national mass burn casualty resource registers and stockpiles (including those in states and territories); and
- regular exercises testing of national mass burn casualty incident arrangements.

5.3 Recovery

5.3.1 Recovery following MCI is generally covered in AUSTRAUMAPLAN. It is possible that an affected state or territory, which has managed a burns incident without external support for the acute response, may require health support during the recovery phase. This may be accessible through AUSTRAUMAPLAN and AUSBURNPLAN.

5.3.2 Recovery in terms of AUSTRAUMAPLAN is outlined in clause 7.3.1. Other areas related specifically to enable the recovery of mass burns casualties include:

- multidisciplinary rehabilitation of casualties to varying extents. Rehabilitation can be prolonged and surge resources required to meet this need must be in place for extended periods;
- national and state and territory debriefing to include a mental health professional with an understanding and knowledge of the mass burn casualty incident;
- aide organisations will be required to provide food, shelter and clothing particularly when people are displaced as a result of loss from a mass burn casualty incident; and
- a review process that will identify when key care providers are able to resume normal business by accepting admissions from the general community. The aim will be to allow access to services for the general community in the timeliest manner possible.

6. RESPONSE

6.1 AUSBURNPLAN Readiness Phases and Activation

6.1.1 AUSTRAUMAPLAN Section 5 outlines the actions of the readiness and activation phases. Actions to complement those in AUSTRAUMAPLAN relating specifically to mass burn casualty incidents are as follows:

STANDBY PHASE

- The National Incident Room (NIR) will notify the National Burn Network
- State and territories to identify available burns resources to support the response (Appendix A-1)
- On activation the NIR will notify the Attorney-General's Department Crisis Coordination Centre of the potential for severe burns casualties and responding coordination

RESPONSE PHASE

- Requires the potential deployment of Australian Government and/or state and territory assets/teams to support the mass burn casualty response
- National Burn Network will be activated by the NIR
- Response will be divided into an initial surge phase, where jurisdictions will deal with an acute increase in demand, followed by a redistribution phase, where national and other state and territory assistance is required

In this redistribution phase, the main issues will be:

- national burn network arrangements, including bed availability, workforce sustainability, maintenance of equipment, operating suites and intensive care facilities, as well as the prolonged recovery phase including mental health, rehabilitation and disaster victim/forensic services; and
- coordination of secondary aeromedical transport from the affected state or territory or overseas to other burn centres

STAND DOWN PHASE

- All consequence management actions requiring national coordination have been completed (acknowledging recovery efforts will be occurring and potentially ongoing)
- AHPC to debrief health responses to response phases of AUSBURNPLAN (disseminate post activation report)

6.2 Aeromedical Transport Considerations

6.2.1 As specified in AUSTRAUMAPLAN, when aeromedical transport is required this will be coordinated by the Attorney-General's Department Emergency Management Australia (AGD EMA) through the Australian Medical Transport Coordination Group (AMTCG). Given the scale and severity of these injuries, Australian Defence Force (ADF) aircraft may be required.

6.3 Mass Burn Casualty Incident Occurring Overseas

6.3.1 The scenario of a major external mass burn casualty incident (Bali 2002) will require a primary response from the Australian Government. Information will be gathered from relevant government agencies and close liaison will be necessary particularly with the ADF, Department of Foreign Affairs and Trade (DFAT), and AGD EMA to implement an appropriate treatment and retrieval response for casualties. This will almost certainly occur through an Inter-Departmental Emergency Taskforce (IDETF).

6.3.2 In an overseas incident, OSMASSCASPLAN applies. The arrangements described above will still occur, with the states and territories assisting the Australian Government by deploying health assets to the site and/or staging area when requested and ensuring an adequate redistribution phase.

6.3.3 If an Australian Medical Assistance Team (AUSMAT) with a burns module is to be deployed overseas, coordination of resources with the receiving country will be required. AGD EMA, in consultation with DFAT and AHPC, will provide the necessary escort team to support the AUSMAT burn module. The composition of this team will be decided at the time of the incident. The team should generally comprise burn/trauma expertise, retrieval expertise, an interpreter (with health and local knowledge), and any security and logistics personnel, as the situation requires. Mental health and public health input into such a task force may be required.

7. ROLES AND RESPONSIBILITIES BY AGENCY

7.1 Australian Government

Appendix 1 of AUSTRAUMAPLAN summarises the potential roles and responsibilities of committees, agencies and other bodies during each stage of the plan's activation. The following tables provide responsibilities of committees specific to AUSBURNPLAN.

Committees	Title	Role
Australian Health Protection Committee	AHPC	• Provide high level strategic and clinical advice on health and medical capabilities and on coordination of national health response to a mass burn casualty incident. • Advice on the requirements in regard to severe burn beds, workforce, critical care management and operating suite availability (National Burn Co-coordinator).
Australian Medical Transport Coordination Group	AMTCG	• Provide a national coordinated medical transport response for the mass burn casualty incident.
Department of Health and Ageing	DoHA	• For mass burn casualty incidents that require a national response, DoHA, through its NIR, is responsible for the activation of AUSBURNPLAN and Response phase activities, via the AHPC, and for the coordination of the disaster medical response in Australia.

7.2 State and Territory Agencies

Agency	Title	Role
State and Territory Health Departments		• Maintain a list of burn services and their capabilities. • Establish a mechanism to rapidly identify capacity for surge in the event of a mass burn casualty incident. • Prepare and provide hospital and other health facilities for burns' casualties. • Provide mortuary services and victim and family support services.

7.3 Other Non Government Organisations and Support Agencies

Agency	Title	Role
Australian Red Cross Blood Service	ARCBS	• Provide blood and blood products as required to an affected state or territory in the event on of a mass burn casualty incident.

8. PLAN TESTING

8.1 The AUSBURNPLAN should be tested every 2 years either via inclusion in a national exercise such as the National Counter-Terrorism Committee (NCTC) capability development program; and/or inclusion in AHPC exercises and drills.

9. PLAN REVIEW

9.1 The AUSBURNPLAN must be reviewed every three years based on exercise outcomes, review of operations, and events that require the plan to be implemented.

10. DEFINITIONS

Australian and New Zealand Burns Association (ANZBA)	An international multidisciplinary professional body representing health care providers and ancillary personnel dedicated to improving burns care, research and education.
Burns Unit (BU)	A dedicated burns facility with purpose built infrastructure and a multidisciplinary health care team to provide burn patient care.
National Burn Network	A group of burns and disaster management experts representing the Australian and New Zealand Burns Association (ANZBA) and the burns facilities across Australia and New Zealand, which provides the infrastructure for a national mass casualty burns response.
Severe burn injury	For the purpose of this plan that more than 25% BSA would qualify as a severe burn injury.

Appendix A - ASSESSING BODY SURFACE AREA BURNT

A1. States and territories should use the most recent ANZ Burn Association (ANZBA) forms for Assessing Body Surface Area Burnt.

Appendix B - RESOURCE LIST

AB.1 National Asset Register

AB.1.1 The establishment and management of a national asset register will be a key deliverable in the preparedness phase.

AB.2 State Burn Register.

AB.2.1 Each state and territory will keep an accurate register of hospital facilities that provide tertiary burn care. This register will include New Zealand facilities to support Australian burn service assets and surge capacity. The register will include the name and contact numbers of accredited burn surgeons, direct burn unit contact numbers, and the names of key personnel who will need to be contacted (e.g. medical director, burn nurse manager). The register will include the number of available burn beds, capabilities for expansion, and number of ventilated beds including ventilator bed expansion capabilities and roster of burns experts.

AB.2.2 The current list of tertiary burn facilities is listed at Appendix C.

AB.3. State Trauma Facility Register.

AB.3.1 Each state and territory will maintain a register of trauma facilities other than those with burn facilities. This is because most disasters will require direct involvement of multiple hospital assets in the case of mass burn casualties. The register should not be confined to city based tertiary facilities; they should be inclusive of regional rural and remote centres, as they may play a strategic role depending on where the MCI occurs. Each trauma facility should provide a list of assets including bed numbers, surge capacity and contact names and numbers of key personnel including the medical director and emergency/trauma director.

AB.3.2 AHPC has undertaken national capability audits and this lists the ventilator assets available. The exact number of patients requiring ventilation is dependent upon the type of incident. However, a significant number of patients, with injury severity scores (ISS) of greater than 16, would expect to be ventilated and require intensive care. The number of severe burn injury casualties requiring ventilation would also be expected to increase during the post-operative phase, given the likelihood of sepsis syndrome and other complications requiring intensive care management.

AB.3.3 Ventilator assets include intensive care ventilators, non-invasive ventilators (BiPAP), anaesthetic machines and transport ventilators. All these assets are important in managing both the surge and the ongoing management of the severe burn incident. In particular, the sourcing of transport ventilators could be necessary in the surge phase.

AB.3.4 The inclusion of medical supplies and pharmaceuticals is important. Materials necessary for burn management should be specifically listed and include:

- Dressing materials – provided by wound care companies.

- Artificial skin substitutes – This includes bio-engineered skin products and cultured epithelial autograft (CEA). Each state and territory has access to these products. Production will be an issue for mass burn casualties.
- Pharmaceutical supplies – will need to take into account large amounts of narcotic analgesics, and antibiotics.

AB.4. State and Territory Burn Plans.

AB.4.1 Each state and territory must have a Mass Burn Casualty Incident Plan that should fit within the AUSBURNPLAN template. In a large-scale MCI, the AHPC will play a key consultative role by liaising with all key stakeholders. However, tasking of state and territory based resources to assist in managing the incident across Australia is best achieved through the current arrangements with AGD EMA and the State Emergency Management Committees.

AB.4.2 The state or territory Mass Burn Casualty Incident Plans should include:

- a program of burns education for health professionals across the state or territory;
- a system of providing on site support from the tertiary Burns Units to outlying health services.

AB.4.3 This ensures that the current robust disaster response remains in place and that a whole of government approach is taken both nationally and at the state and territory level. This is particularly important in the event of a terrorist attack where a seamless interface between crisis and consequence management response operations occurs.

AB.5 Burn Workforce.

AB.5.1 The maintenance of the highly specialised burn and trauma workforce will be important and key personnel and their contacts should be listed. The burn workforce includes burn medical staff, burn nursing staff, critical care and retrieval staff, anaesthetic staff, burn allied health staff (physiotherapy, occupational therapy, social work, dietician, speech therapist, psychologist) and other burn related specialties as required.

AB.5.2 Other staff may be mobilised during a MCI situation. These may include plastic surgeons, nurses and therapists with previous burn experience. The details of these staff should be maintained on a local register for deployment if required.

AB.6 National Burn Network

AB.6.1 A group of burns and disaster management experts representing the Australian and New Zealand Burns Association (ANZBA) and the burns facilities across Australia and New Zealand, which provides the infrastructure for a national mass casualty burns response.

Appendix C - TERTIARY FACILITIES PROVIDING SEVERE BURN INJURY SERVICES ACROSS AUSTRALIA.

Contact Details for Burn Units in Australia and New Zealand.

State/Territory	Burn Services Available	Contact Details
NSW	Concord Repatriation General Hospital The Children's Hospital at Westmead Royal North Shore Hospital	(02) 9767 5000 (02) 9845 0000 (02) 9926 7111
South Australia	Royal Adelaide Hospital Women's and Children's	(08) 8222 4462 (08) 8161 7000
Victoria	The Alfred Royal Children's	(03) 9276 2000 (03) 9345 5522
Queensland	Royal Brisbane Hospital Royal Children's Hospital	(07) 3636 8111 (07) 3834 6111
Western Australia	Royal Perth Hospital Princess Margaret's Children's Hospital	(08) 9224 2154 (08) 9340 8257
Tasmania	Royal Hobart	(03) 6222 8558
New Zealand	Middlemore Hospital, Auckland	+64 9 276 0000

Appendix D - NATIONAL BURN NETWORK

State/Territory	Contact	Contact Details
New South Wales	Anne Darton Clinical Network Manager NSW Severe Burn Injury Service	PH: 02 9926 5641 Mobile: 0421 029 430 Email: adarton@nsccahs.health.nsw.gov.au
Victoria	Dr Heather Cleland Alfred Hospital Melbourne	Ph: (03) 9076 3626 Email: h.cleland@alfred.org.au
Tasmania	Dr Mihaela Lefter Visiting Medical Specialist Plastic Surgery Royal Hobart Hospital	Ph: 03 6222 8308 Email: mihaela.lefter@dhhs.tas.gov.au
South Australia	Dr John Greenwood Director – Burns Unit Royal Adelaide Hospital	Ph: 0422 000 809 Email: john.greenwood@health.sa.gov.au
Western Australia	Prof Fiona Wood Director Burns Unit Royal Perth Hospital	Ph: 08 9224 3558 Email: Fiona.Wood@health.wa.gov.au
Northern Territory	Mr David Read Ms Alison Mustapha	Ph: Royal Darwin Hospital 08 8922 8888
Queensland	Dr Michael Muller Director Burns Unit Royal Brisbane and Women's Hospital	PH: 07 3636 1621 Fax: 07 3636 1314 Mobile: 0418 791 984 Email: Michael_Muller@health.qld.gov.au
ACT	Not applicable	Not applicable