

Humanitarian Aid/Disaster Relief (HA/DR) in the Australian Defence Force: Health aspects

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Introduction

This article follows previous papers by the author, regarding occupational and environmental medicine in the ADF.^{1,2,3,4,5,6,7,8,9} These papers, as well as a recent Productivity Commission inquiry,¹⁰ describe why high workplace illness and injury rates confirm the need to improve the management of hazards associated with ADF workplaces, with better emphasis on prevention. To this end, a submission by the Royal Australasian College of Physicians to the aforementioned inquiry, advocated this would best be achieved by premising the ADF's health services on a systems-based occupational health strategic model.¹¹

Doing so would require reassessing the fundamental inputs to capability (FiC)¹² for both Joint Health Command (JHC), and Defence's Work Health and Safety Branch. Previous papers have explained that the current state of the ADF's occupational and environmental health services, and the small number of civilian specialist practitioners within the Australasian Faculty of Occupational and Environmental Medicine (AFOEM), indicate that implementing a mature holistic and sustainable model would take 10–15 years' sustained effort.

The current strategic-level guidance for ADF Humanitarian Aid/Disaster Relief (HA/DR) operations is in Australian Defence Doctrine Publication (ADDP) 3.20 *The Military Contribution to Humanitarian Operations*, which was last updated in 2013.¹³ The purpose of this article is to inform future iterations of ADDP 3.20 and other related ADF and single-service references by expanding on previous papers as to how such a model can be applied regarding ADF health support for HA/DR operations.

Overview

Internationally, the United Nations (UN) defines humanitarian aid as aid provided to a stricken population that complies with the basic humanitarian principles of humanity, impartiality and neutrality, in order to save lives, limit extraordinary suffering and prevent further damage to the affected society.¹⁴ The UN outlines three major HA categories:

1. **Direct HA.** Face-to-face distribution of goods and services to the affected population.
2. **Indirect HA.** Activities such as transporting relief personnel and supplies with no affected population contact.
3. **Infrastructure support.** General life support services, as well as construction tasks that facilitate relief but are not necessarily delivered solely for the affected population.¹⁵

The UN Office for the Coordination of Humanitarian Affairs also notes that:

'Promoting gender equality must be central to the humanitarian community's commitment to protect and provide assistance to people affected by emergencies. Conflicts and disasters impact women, girls, boys and men of various ages and backgrounds differently. Gender, age, socioeconomic and cultural backgrounds greatly affect the roles people play in their family and community, and how they are affected by a crisis'.¹⁶

These considerations explain how the ADF health services that are predicated on a systems-based occupational health strategic model can and should contribute to HA/DR operations.

ADF aspects

Previous missions. Australia's first humanitarian aid mission responded to the 1918 influenza pandemic in the southwest Pacific,¹⁷ while its largest remains that to the destruction of Darwin by Cyclone Tracy in 1974.^{18,19} More recent domestic HA/DR missions include (but by no means limited to) the annual Army Aboriginal Community Assistance

Program conducted since 1996,²⁰ and the ADF's responses to Cyclone Larry in 2006,²¹ the 2010–11 Queensland floods,²² and the 2019–20 bushfires.²³ Overseas ADF HA/DR missions include northern Iraq after the 1991 Gulf War,²⁴ the 2004 Indian Ocean tsunami, the 2005 Kashmir earthquake, the 2010 Pakistan floods, and the 2015 Vanuatu and 2016 Fiji cyclones.²⁵ Reference should also be made to the ADF's contribution to the ongoing biennial Pacific Partnership deployments since 2006.²⁶

The ADF and its antecedent organisations, therefore, have a long HA/DR history. The impact of climate change, in particular, indicates that the frequency and scope of these missions will continue to expand.²⁷

Current roles. ADDP 3.20 explains how the ADF typically undertakes HA/DR missions as part of a Whole-of-Australian-Government (WoAG) response. Like other countries, decisions to undertake HA/DR missions and their nature, level and duration often not only reflect altruistic imperatives per the UN, but also their use as 'soft power' enablers in support of Australia's national interests.²⁸

Hence, although it may not be specifically stated doctrinally, in general terms, ADF health support for HA/DR missions can be differentiated from non-HA/DR missions in that:

- In many cases, the ADF is *not* the lead Australian government agency. Disaster responses within Australia are typically led by the local State or Territory government, while overseas disaster responses are usually led by the Department of Foreign Affairs and Trade.²⁹
- Rather than acting as a *supporting* arm to a deployed force, the ADF health assets may be the primary force *being supported by* other arms, as occurred for the 1994–95 Rwanda deployment.³⁰
- As the ADF's health services typically provide an initial and short-term HA/DR response until normal services are restored, or other agencies take over:
 - the notice to move is often far shorter compared to other ADF deployments, and
 - there is a far greater level of interaction with other (non-ADF) health agencies.

While the ADF employs a joint approach to its HA/DR operations, the following sections explain how the health contributions by each service are complementary rather than interchangeable.

Air Force HA/DR considerations

Australian Air publication 1000-D *The Air Power Manual* states:

*'Air power affords the Government options to respond to the entire spectrum of conflict from providing humanitarian assistance or disaster relief to delivering national security imperatives and protecting national interests.'*³¹

The *Air Power Manual* also notes that air mobility is often the transportation mode of choice when speed, reach, and obstacle and surface threat avoidance are required. The air power attributes that are especially relevant to HA/DR missions include the ability to rapidly deploy, sustain and redeploy personnel and materiel to, from or within an operational theatre.

However, the key limitations with respect to Air Force HA/DR support pertain to:

- Access to suitable on-site fixed-wing airfields (including—but not limited to—runways, taxiways and ramp areas, all of which need to be of suitable length/size, condition and weight-bearing capacity), air traffic control facilities and personnel (especially in congested airspace), ground support equipment and personnel (in particular for aircraft unloading), and access to fuel. These limitations can be mitigated by the airfield performance and self-loading/unloading capabilities of aircraft such as the C17 Globemaster III,³² C-130J Hercules,³³ and C27J Spartan.³⁴
- Aircraft payload, which is limited to at most tens of tons, and usually entails a trade-off against fuel load and hence range. Subject to the previous dot point, this limitation can be partly addressed with high sortie rates.
- Aircraft and aircrew personnel maintenance, the latter including adequate food, fluids and rest. This can be addressed using relief aircrew and maintainers.

Hence, it should be expected that Air Force would be responsible for providing health-related aerospace HA/DR support as follows.

- Airfield availability permitting, providing the initial response to an HA/DR event via the strategic or tactical airlift of disaster health assessment³⁵ and aeromedical evacuation (AME) teams.
- Providing an initial lifesaving surgical response for multiple casualties *within* 36 hours of the incident. This timeframe being premised on the victims who *most* need such surgery,

being *unlikely* to survive beyond this period. Combined with the aforementioned limitations, this consideration usually means that, after the disaster needs assessment, an early priority would be the triage, resuscitation and evacuation of such casualties to the nearest suitable health facilities, *unless*:

- The volume of on-scene lifesaving surgical work / post-operative care *within* this timeframe is *small* enough to be accommodated by air-transportable surgical team(s) *without* logistic support, or
- These team(s) can meet the surgical *and* post-operative demands with the logistic support available until either the demand reduces or can be relieved by follow-up surgical teams (see below).

This implies the need for HA/DR AME teams to include intensivists and other highly-skilled retrieval specialists, as occurred in response to the 2002 and 2005 Bali bombings,^{36,37} and the 2019 White Island volcano disaster.³⁸

- Along with the other services, contributing to the follow-on WoAG response *beyond* 36 hours of the incident. These operations may entail providing fixed-wing strategic and tactical:
 - Airlift support, with respect to time-critical medical (among other) stores, and the deployment, sustainment and redeployment of relief medical (among other) teams. It should also be noted that the absence, damage or destruction of suitable seaports or their enabling infrastructure, or lack of suitable beaches or landing craft, may result in the airlift option becoming the *sole* alternative.
 - AME services for the affected population and HA/DR responders, supported as required by in-theatre AME staging teams.



Ambulances line up behind a 37 Squadron C-130J Hercules to receive civilian patients evacuated from Bundaberg Hospital during the 2013 Queensland floods'.³⁹

Navy HA/DR considerations

Australian Maritime Doctrine (AMD) states that:

*'Warships repeatedly demonstrate that their inherent capabilities make them uniquely valuable in providing both short notice and long-term assistance in disaster relief, not only for coastal locations, but sometimes well inland. While embarked helicopters can be particularly useful and ships may act as logistic support bases, hospitals and command posts for long periods, the specialist skills available in ships also mean that their personnel can be invaluable sources of trained manpower for rehabilitation and repair work. Most importantly, naval forces are self-supporting and do not create additional logistic burdens in situations where infrastructure has been destroyed or severely damaged.'*⁴⁰

AMD also notes that, although ships move at only one-thirtieth the speed of aircraft, they can carry thousands of times the payload.⁴¹ Furthermore, their capacity to be replenished at sea means they can remain on-task for weeks or even months at a time.

Conversely, the key limitations regarding Navy HA/DR support pertain to:

- The distances inherent to HA/DR operations within Australia's area of strategic interest, which mean ship transit times are typically measured in days, compared to hours for aircraft.
- The availability of accessible seaports and their enabling infrastructure. This can be mitigated by hydrographic teams conducting port surveys and/or Navy clearance divers performing obstacle clearance before the ships arrive. Other options include using suitable beaches (subject to landing craft availability) and/or ship-board helicopters within their range, payload, weather and other operational constraints.
- Ship and ships' company maintenance, noting that (as examples), ships are *not* staffed to conduct 24-hour flight deck/well dock operations and need to replenish their freshwater supplies by running their reverse osmosis plants offshore. These limitations can be mitigated by forward planning.
- Hence, it should be expected that Navy would be responsible for health-related maritime HA/DR support as follows.
- Complying with its International Convention on Safety at Sea (SOLAS) obligations, such

as treating foreign crewmen at sea who lack access to health care, or caring for ill or injured shipwreck survivors.⁴² Although these obligations are usually met with the ship's extant health assets (for example, the 2010 SIEV 221 incident),⁴³ augmentation may be required in remote or demanding situations, such as the 2009 SIEV 36 incident.⁴⁴

- In some circumstances, the initial response to an HA/DR event ashore may begin by reassigning the nearest available ship, as occurred when HMAS *Parramatta* (II) was diverted for an earthquake on Bali during a heretofore routine 'up top' deployment in 1976.⁴⁵ As this occurs with minimal notice, the ship's ability to respond will reflect her extant health capabilities, which (noting most do *not* carry a medical officer) will usually restrict her to providing *indirect* support for crew members working ashore.
- Expanding the initial Air Force response, via:
 - The strategic, tactical or forward sealift of HA/DR personnel, equipment and stores, including the deployment, sustainment and redeployment of medical relief teams. It should also be noted that the absence, damage or destruction of suitable airfields and/or their enabling infrastructure within the range of the aircraft that would otherwise be available for airlift purposes, may result in the sealift option becoming the only alternative.
 - The provision of an onboard lifesaving surgical response for casualties ashore *beyond* 36 hours of the incident. It should be noted that for this to occur, the Maritime Operational Health Units that routinely deploy aboard the Landing Helicopter Docks *Adelaide* or *Canberra*,⁴⁶ or the Landing Ship Dock *Choules*,⁴⁷ would require mission-specific augmentation.
- Along with the other services, contributing to a follow-on WoAG response, such as:
 - Restricting the deployment footprint ashore by providing 'sea-based' strategic, tactical and forward sealift support for the deployment, sustainment and redeployment of shore-based health assets. This may include using helicopters for sea-based airlift and AME support.
 - Providing a sustained follow-on onboard *direct* HA/DR primary care and other aforementioned health services for the

affected population, *if tasked*. This response will most likely *only* be provided for incidents within Australia (as occurred during the 2019–20 bushfires)⁴⁸ or for overseas Non-Combatant Evacuation Operations (NEO) involving Australian nationals and other approved evacuees (as occurred in 2000 in Operation PLUMBOB).⁴⁹

- Otherwise providing a sustained onboard *indirect* HA/DR primary care and other health services for entitled personnel who are part of an ADF, WoAG or international response. These may include ADF health assets that in turn, are providing *direct* HA/DR primary care and other health services *ashore* for an affected population.



Medical Officer LEUT (now CMDR) Ninian Melville (left), and CPOMEDU (now LEUT) Melissa Thomson head from the submarine rescue ship MV *Stoker* to the yacht *Garmin* for a civilian SOLAS medical evacuation, Indian Ocean, 2017⁵⁰

Army HA/DR considerations

Army's Land Warfare Doctrine 1 (LWD1) states:

*'Army's responsibilities include promoting and shaping the international security environment, and responding to crises that are not strictly defined as war—such as humanitarian assistance and disaster relief. These actions provide weight to Australia's strategic and diplomatic efforts.'*⁵¹

LWD1 also refers to Army's strong expeditionary culture, which is essential to conducting overseas HA/DR operations.⁵²

Army's key HA/DR contribution pertains to its ability to provide a scalable response without the same space (Navy) or weight (Air Force) constraints; for example, employing heavy machinery plant

to restore damaged or destroyed infrastructure. Its ability to co-locate health teams with (or even among) the affected population also makes Army better suited than the other services for direct HA/DR health support, especially over extended periods.

Conversely, Army's key limitations pertain to:

- Its dependence on the other services with respect to deploying to, sustainment in and redeployment from the affected area(s), whether overseas or remote locations within Australia. This is partly mitigated by Navy and Air Force acceptance that enabling sea- and airlift support for all three Services as one of their elemental roles.
- The footprint size, disposition and duration of deployed Army assets, especially in locations where the infrastructure is already under strain or has been destroyed, or overseas if there are cultural, political or other sensitivities regarding foreign presences. As previously indicated, these can be mitigated via 'sea-basing', for example, as per the biennial Operation RENDER SAFE deployments.⁵³

Hence, it should be expected that Army would be responsible for health-related land-based HA/DR support as follows.

Assembling follow-on mission-specific land-based HA/DR health teams and units at the relevant mounting base (typically RAAF Bases Richmond, Amberley or Townsville for Air Force, otherwise HMAS *Kuttabul* or Townsville for Navy) for loading and transport.

Once deployed, using these teams and units to contribute to the follow-on WoAG response, typically via providing:

- Sustained *indirect* HA/DR primary care and other health services for entitled personnel who are part of an ADF, WoAG or international response.
- Sustained *direct* HA/DR primary care among the other aforementioned health services for the affected population, *if tasked*.
- Forward support for the deployment, sustainment and redeployment of land-based health assets. This may include using helicopters for land-based airlift and AME support.



*Private Markus Collins treats an earthquake survivor, Dhanni township Punjab province, Operation PAKISTAN ASSIST, 2005*⁵⁴

HA/DR medical logistics

A key consideration for Joint Logistics Command relates to providing medical stores support at the mounting bases for the respective Air Force and Navy initial health HA/DR responses, which would transition to likewise sustaining the deployed land-based Army HA/DR health units. This issue is complicated by the aforementioned fact that, while the medical logistic requirements for *indirect* HA/DR health support are again likely to reflect other ADF operations, that for *direct* HA/DR health support needs to accommodate the vulnerable population subgroups.

Implications

The author has previously advocated that the ADF health services should be based on a systems-based occupational health strategic model, premised on the following considerations.

The need for 'health' (not just 'treatment') services, that reflect a complex, highly medically selected, *young* working age, geographically widely dispersed, exceptionally mobile and (for now) predominantly male population, which is probably exposed to the most diverse range of higher-risk workplace hazards of any Australian workforce.⁵⁵

Previous papers have explained why, absence of data notwithstanding, anecdotal evidence suggests that:

Perhaps 30–40 per cent of ADF clinical presentations to a typical 'garrison' medical practitioner are for generally preventable musculoskeletal injuries. About half may be workplace-related (typically related to manual handling or slips/trips/falls); the remainder tends to be sports-related.

Possibly another 30–40 per cent of these presentations are for generally preventable workplace mental health issues. Around half of these members lack psychological robustness for whom the ADF has been a poor career choice; the rest are psychologically robust but are not coping with excessively demanding or otherwise dysfunctional ADF workplaces or personnel management practices.⁵⁶

This paper, therefore, contends that, as perhaps up to 80 per cent of ADF primary care presentations may be work-related (compared to only 2.4 per cent of civilians),⁵⁷ HA/DR support should *not* distract the ADF's health services from their primary role of supporting the ADF workforce, especially noting that the proposed model remains compatible with providing *indirect* HA/DR support on the same terms as other ADF operations.

It is accepted that this model is not best suited to provide *direct* HA/DR health care for vulnerable population subgroups. However, the ADF health reserves *can* provide 'militarily-oriented' specialist augmentation (again, as for other ADF operations) in the form of surgical teams, AME retrieval intensivists, general, public health and occupational and environmental health physicians, and allied environmental health professionals.

Otherwise, the provision of 'non-militarily-oriented' specialist augmentees, such as obstetricians/gynaecologists and paediatricians, depends on whether or not they are intended to deploy with an ADF HA/DR health team. Doing so implies they require the same opportunities to become familiar with the ADF team(s) with which they will deploy as their 'militarily-oriented' specialist peers; else, they would be better deployed with a formed *civilian* HA/DR team, as part of a broader WoAG effort.⁵⁸

Conclusion

With ADF personnel arguably exposed to the most diverse range of occupational and environmental hazards of any Australian workforce, high rates of preventable workplace illness and injury indicate the need to improve the management of occupational and environmental health hazards, with better emphasis on prevention than treatment.

The author's previous articles, therefore, advocate that the ADF's health (not just treatment) services should reflect the ADF's complex, highly medically selected, young working age, geographically widely dispersed, exceptionally mobile and (for now) predominantly male workforce. This means they should be premised on a systems-based occupational health strategic model.

This paper explains the extent to which the health contributions by each service to HA/DR operations are complementary rather than interchangeable. It also explains why HA/DR health support should not distract the ADF's health services from their primary role of supporting the ADF workforce, noting that the proposed model remains consistent with providing indirect HA/DR support on the same terms as other ADF operations.

This means any requirement to provide direct HA/DR health care for vulnerable HADR subgroups will require augmentation, either by incorporating the relevant specialists into the ADF's health teams or deploying them as part of a broader WoAG HA/DR response within deployable civilian health teams.

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Commander Westphalen transferred to the Active Reserve in 2016. Comments regarding this and previous articles are most welcome.

Disclaimer

The views expressed in this article are the author's and do not necessarily reflect those of the RAN or any of the other organisations mentioned.

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Disclaimer: the author was requested to draft this submission, as a member of the AFOEM Policy and Advocacy Committee (PAC). It was cleared by both the Faculty and College PACs prior to submission.

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 - Organisation;
 - Collective training;
 - Facilities;
 - Supplies;
 - Major systems;
 - Support, and
 - Command and management.
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- 37 The Bali bombing incident on 01 Oct 05 killed 20 people and wounded over 100 more. Two RAAF C-130s, with an aeromedical evacuation team, surgical team, medical staging facility and co-ordination element, evacuated 22 casualties and some of their family members to Darwin. See Australian Institute for Disaster Resilience – Knowledge Hub, Bali Indonesia, October 2005: Criminal – Bali Bombings. Available from: <https://knowledge.aidr.org.au/resources/criminal-bali-bombings>. Also, Deadly blasts rip through Bali. Sydney Morning Herald. 2005 Oct 3. Available from: <https://www.smh.com.au/world/deadly-blasts-rip-through-bali-20051003-gdm66o.html>.
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- 40 Sea Power Centre—Australia. Maritime Operations. Australian Maritime Doctrine: RAN Doctrine 1. Canberra: Sea Power Centre—Australia; 2010. p. 110. Available from <https://www.navy.gov.au/sites/default/files/documents/Amd2010.pdf>.
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- 42 See Australian Maritime Safety Authority. Search and rescue. Available from: <https://www.amsa.gov.au/safety-navigation/search-and-rescue#collapseArea248>.
- 43 On 15 December 2010, SIEV 221 sank after striking coastal cliffs on Christmas Island, while carrying 89 passengers and three crew. 41 survivors were rescued by HMAS *Pirie* and ACV *Triton*. See Hope, Justice AN. Inquest into 30 deaths of (individual names); Inquest into 20 suspected deaths of (individual names). Perth WA: Western Australian Coroner; 2010. Available from: https://www.coronerscourt.wa.gov.au/files/Christmas_Island_Findings.pdf.
- 44 On 16 April 2009, SIEV 36 exploded and sank off Ashmore Reef, while carrying two crew and 47 passengers. Five passengers were killed and while 31 of the 44 survivors required urgent evacuation ashore with severe burns, which took place in a highly complex operations without further loss of life. See Cavanagh G. Inquest into the death of (individual names). Darwin Coroner's Court; 2010 Mar 27. Available from: <https://www.defence.gov.au/siev36/pdf/findings%20-%20SIEV%2036%20inquest.pdf>. Also, Leclercq M, Robertson A. (A216) Ashmore Reef Boat Explosion: A Nightmare Scenario that Became a Reality. *Prehospital and Disaster Medicine*. 2011;26:s60. Available from: <https://doi-org.wwwproxy1.library.unsw.edu.au/10.1017/S1049023X11002068>.
- 45 See Bullard S. Back to Bali. In their time of need: Australia's overseas emergency relief operations 1918–2006. The Official History of Australian Peacekeeping, Humanitarian and Post-Cold War Operations. 6. Port Melbourne VIC: Cambridge University Press—Australian War Memorial; 2017. p. 140-52.
- 46 Royal Australian Navy. Amphibious Assault Ship (LHD). Available from: <https://www.navy.gov.au/fleet/ships-boats-craft/lhd>.
- 47 Royal Australian Navy 1. Landing Ship Dock (LSD). Available from: <https://www.navy.gov.au/fleet/ships-boats-craft/lsd>.
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- 54 Department of Defence – Defence Images. Defence photograph 20051118adf8239682_0048. Available from: https://images.defence.gov.au/assets/Home/Search?Query=20051118adf8239682_0048&Type=Simple.
- 55 See Westphalen N. Enabling Operational Capability: Elements of an Australian Maritime Health Doctrine... and Why Navy Needs One. Canberra: Australian Naval Institute; 2019 May. Available from: <https://navalinstitute.com.au/wp-content/uploads/ANI-Maritime-Health-Doctrine.pdf>. Although the demographics described pertain to Navy, those for the other services are likely to be very similar. However, this cannot be said for their respective workplace health hazards.
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- 57 Sydney University Family Medicine Research Centre. Work-related problems managed. General practice activity in Australia: Sydney University Family Medicine Research Centre; 2013–14. p. 64. Available from: https://ses.library.usyd.edu.au/bitstream/handle/2123/11882/9781743324226_ONLINE.pdf?sequence=4. Searches for more recent data regarding work-related presentations to GPs in Australia have not been successful.
- 58 See Department of Foreign Affairs and Trade. Humanitarian policy and partnerships - Australian Medical Assistance [sic] Teams (AUSMAT) Available from: <https://www.dfat.gov.au/aid/topics/investment-priorities/building-resilience/humanitarian-policy-and-partnerships/Pages/australian-medical-assistance-teams-ausmat>.