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This reference describes the following Fundamental inputs to (in this case health) Capability (FiCs).

Personnel;

Organisation;

Collective training;

Facilities;

Supplies;

Major systems;

Support, and

Command and management.

 For example, see Australian National Audit Office [Internet]. ‘Performance Audit Report No. 34 1996-97: Australian Defence Force Health Services’, 1997, 27 May, [cited 2019, 21 Mar]. Available at: <https://www.anao.gov.au/sites/default/files/ANAO_Report_1996-97_34.pdf>.

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This paper will describe the extent to which this and similar articles miss the point, regarding the extent to which the cost of (for example, elective cosmetic surgery and fertility treatment per this article), are overwhelmed by the costs pertaining to *preventable* ADF workplace illness and injury.

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It should be noted that neither of these websites specifically refer to either Joint Health Command (JHC) or Bupa (JHC’s garrison health contractor) actually facilitating Navy (or indeed ADF) operational capability, or facilitating the eventual transition of ADF members to the civilian community.

 This paper is written to reflect the medical, dental and mental health of Navy personnel as being within its remit. While their importance with respect to operational capability is acknowledged, physical suitability in the absence of a medical diagnosis is a non-medical Command issue, while spiritual suitability is likewise a non-medical chaplaincy issue.

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1. ADDP-D pp. 1-2 lists these additional references as follows:

the Defence White Paper;

Defence Planning Guidance;

CDF Preparedness Directive;

Quarterly Strategic Review;

The Strategy Framework;

CDF Planning Directives;

Future Concept Papers; and

other extant Defence doctrine, concepts, and publications.

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 Examples include VISITATION, CLAMSAVER, BLIZZARD, CENTENARY, GOLD, TARTAN, SCRUMMAGE and SOUTHERN INDIAN OCEAN. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

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 Examples pertaining to the maritime interception of suspected illegal immigrants include Operations GUARDIAN, RELEX I and RELEX II. Examples pertaining to fisheries protection and law enforcement around Australia include Operations GULF STORM, GUNWHALE, CUTOUT, AVIAN LINNET and SHARKFIN, while those pertaining to the southern Indian Ocean include Operations DIRK, STANHOPE, MISTRAL, TEEBONE, SUTTON, GEMSBOK and CELESTA. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

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 For example, in response to Iraq’s invasion of Kuwait on 02 August 1990, HMA Ships *Adelaide* (FFG01), *Darwin* (FFG04), and *Success* (AOR314), were advised on Friday 10 August that they would sail for the Persian Gulf the following Monday. See Horner, D. ‘Australia and the ‘New World Order: from Peacekeeping to Peace Enforcement 1988-1991’, *The Official History of Australian Peacekeeping, Humanitarian and Post-Cold War Operations* Volume II, pp. 288-313. Melbourne: Cambridge University Press 2011.

 These include Operations NIUE ASSIST, SUMATRA ASSIST I and II, SAMOA ASSIST, PADANG ASSIST, FIJI ASSIST and PACIFIC ASSIST. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operations DAMASK and SLIPPER. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operations LAGOON, BEL ISI I AND II. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operations DORSAL/ORBIT and ANODE. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operation RENDERSAFE. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operations DEFERENCE, BARITONE, COULTER, BRANCARD, SPITFIRE, PLUMBOB, FOREST and QUICKSTEP. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operation STABILISE. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operation CATALYST. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operation DAMASK II. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Operation FALCONER. See Sea Power Centre – Australia, 2005, Working Paper 18: Database of Royal Australian Navy Operations 1990-2005.

 Sea Power Centre – Australia [Internet]. ‘Australian Maritime Doctrine (AMD): RAN Doctrine 1’, 2nd edition, 2010, pp. 9-17, [cited 2019, 21 Mar]. Available at: <http://www.navy.gov.au/sites/default/files/documents/Amd2010.pdf>.

 See The Literature Network [Internet]. Conrad, J. *The Mirror of the Sea* Chap 36, 1906, [cited 2019, 21 Mar]. Available from: <http://www.online-literature.com/conrad/mirror-of-the-sea/36>:

“The sea – this truth must be confessed – has no generosity. No display of manly properties – courage, hardihood, endurance, faithfulness – has ever been known to touch its irresponsible consciousness of power. The ocean has the conscienceless temper of a savage autocrat spoiled by much adulation. He cannot brook the slightest appearance of defiance, and has been the irreconcilable enemy of ships and men ever since ships and men had the unheard-of audacity to go afloat together in the face of his frown. From that day, he has gone on swallowing ships and men without his resentment being glutted by the number of victims – by so many wrecked ships and wrecked lives. Today, as ever, he is ready to beguile and betray, to smash and to drown the incorrigible optimism of men… If not always in the hot mood to smash, he is always stealthily ready for a drowning. The most amazing wonder of the deep is its unfathomable cruelty”.

See also Monsarrat, N, 1951, *The Cruel Sea*; also, Forrester, C.S, 1955, *The Good Shepherd*; also, Maclean, A, 1955, *HMS Ulysses* (all with various publishers). Fictional dramatisations notwithstanding, all four authors had had at times extensive seagoing experience. Their books make the same point: even in wartime, the sea is far more dangerous than any human enemy.

 Many RAN WWII ship losses included their commanding officers, including HMA Ships *Goorangai*, *Parramatta*, *Sydney*, *Perth*, *Yarra*, *Vampire*, *Canberra*, *Armidale* and *Matafele*. In addition, HMAS *Australia* II lost her commanding officer in action in October 1944. For a peacetime example, *Voyager* II’s commanding officer was killed in the collision with the aircraft carrier *Melbourne* in 1964.

 Sea Power Centre – Australia [Internet]. ‘Australian Maritime Doctrine (AMD): RAN Doctrine 1’, 2nd edition, 2010, pp. 12-13, [cited 2019, 21 Mar]. Available at: <http://www.navy.gov.au/sites/default/files/documents/Amd2010.pdf>.

 Federal Register of Legislation [Internet]. ‘Defence Act 1903’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2017C00342>.

 Federal Register of Legislation [Internet]. ‘Defence Force Discipline Act 1982’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2016C00811>.

 Federal Register of Legislation [Internet]. ‘Sex Discrimination Act 1984’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2014C00002>.

 Federal Register of Legislation [Internet]. ‘Disability Discrimination Act 1992’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2005C00526>.

 Federal Register of Legislation [Internet]. ‘Work Health and Safety Act 2011’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2011A00137/rss>.

 Federal Register of Legislation [Internet]. ‘National Health Act 1953’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2017C00380>.

 Federal Register of Legislation [Internet]. ‘Health Insurance Act 1973’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2017C00255>.

 International Committee of the Red Cross [Internet]. ‘The Geneva Conventions of 1949 and their Additional Protocols’, [cited 2019, 21 Mar]. Available from: <https://www.icrc.org/en/document/geneva-conventions-1949-additional-protocols>.

 See Department of Defence [Internet]. ‘Executive Series ADDP 06.4 Law of Armed Conflict’, [cited 2019, 21 Mar]. Available from: <http://www.defence.gov.au/adfwc/Documents/DoctrineLibrary/ADDP/ADDP06.4-LawofArmedConflict.pdf>.

1. For an overview of the different injury and illness profiles between males and females, see Australian Institute of Health and Welfare [Internet]. ‘Australia’s Health 2018’, 3.15 Injuries’ pp. 143-145, [cited 2019, 21 Mar]. Available from: <https://www.aihw.gov.au/getmedia/7c42913d-295f-4bc9-9c24-4e44eff4a04a/aihw-aus-221.pdf.aspx?inline=true>.

 Disclaimer: the existence of different illness and injury profiles between males and females does not mean that one medically is more suited for Navy service than the other. It simply means that their supporting health services should reflect their different profiles. See White, T (editor), *Winning at Sea: The Story of Women at Sea in the RAN*, Canberra: Defence Publishing Service, 2013.

 See Australasian Faculty of Occupational and Environmental Medicine [Internet]. ‘Guide to pregnancy and work’, [cited 2019, 21 Mar]. Available from: https://www.racp.edu.au/docs/default-source/advocacy-library/the-australasian-faculty-of-occupational-and-environmental-medicine-guide-to-pregnancy-and-work.pdf?sfvrsn=85c3031a\_12.

 For example, see Burt C.D.B. ‘New employee safety: Risk factors and management strategies’, pp. 9-22. Switzerland: Springer International Publishing, 2015.

1. Productivity Commission [Internet]. 2018, ‘Productivity Commission Draft Report Overview: A Better Way to Support Veterans’, 2018, 18 Dec, p. 34, [cited 2019, 21 Mar]. Available from: <https://www.pc.gov.au/inquiries/current/veterans/draft/veterans-draft-overview.pdf>.

 This difference in posting practices has posed some challenges for the LHDs. These ships have crews of up to 400 personnel, including up to 100 Army and RAAF members. Their operational capability is seriously impaired if the latter’s non-deployable members are not replaced on the same terms as the Navy LHD crew element.

 Likewise, the six ‘garrison’ regions do not facilitate consistent health support for Army and RAAF personnel as they move between them, in particular assessing their medical and dental suitability for deployment.

 For example, the search area for Malaysian Airlines MH 370 (Operation SOUTHERN INDIAN OCEAN) in March 2014, was three days’ sail from the nearest airfield (Learmonth WA) within helicopter range.

 For example, HMAS *Anzac* (FFH150) was conducting Operation DIRK off Heard Island in October 1997, when a crew member developed appendicitis. The patient was transferred to HMAS *Westralia* (AO195), for landing ashore for treatment, in an operation that took six days.

1. See Department of Defence [Internet]. ‘RMAF Base Butterworth’, [cited 2019, 21 Mar]. Available from: <https://www.airforce.gov.au/about-us/bases/overseas/rmaf-base-butterworth>.
2. See ‘Health Service Profile: United Nations Military Hospital, East Timor’, *ADF Health*, Volume 2 Number 1 back cover; Apr 2001.

See also ‘Health Service Profile: Combined Health Element, Peace Monitoring Group, Bougainville’, *ADF Health*, Volume 2 Number 2 back cover; Sep 2001.

See also ‘Health Service Profile: 1st Health Support Company OP ANODE, Regional Assistance Mission to Solomon Islands’, *ADF Health*, Volume 5 Number 2 back cover; Sep 2004.

See also Aspen Medical [Internet]. ‘A decade providing healthcare support to AFP and ADF personnel in Solomon Islands’, [cited 2019, 21 Mar]. Available from: <https://www.aspenmedical.com/content/decade-providing-healthcare-support-afp-and-adf-personnel-solomon-islands>.

1. This assertion reflects national economic resources. In 2014, Australia’s per capita gross national product was US $43,000, compared to an average of US $14,525 for American Samoa, Brunei, Cook Islands, East Timor, Federates States of Micronesia, Fiji, French Polynesia, Indonesia, Kiribati, Malaysia, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, the Philippines, Samoa, Singapore, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu. If the top six countries per this list are removed, the remainder average only US $7317. See Index Mundi [Internet]. ‘Country Comparison’, [cited 2019, 21 Mar]. Available from: <https://www.indexmundi.com/g/r.aspx?v=67>.

 Sea Power Centre – Australia [Internet]. ‘Australian Maritime Doctrine (AMD): RAN Doctrine 1’, 2nd edition, 2010, pp. 12-13, [cited 2019, 21 Mar]. Available at: <http://www.navy.gov.au/sites/default/files/documents/Amd2010.pdf>.

 For example, see Spicer, JA, Report of Royal Commissioner on Loss of HMAS *Voyager*, Canberra: Commonwealth Government Printer, 1964, regarding Leading Sick Berth Attendant (LSBA) John Rennie ‘Tug’ Wilson BEM. Despite multiple injuries sustained when his ship collided with the aircraft carrier *Melbourne*, LSBA Wilson persisted in treating other casualties until he was ordered to abandon ship.

1. See Navy: Serving the Nation with Pride [Internet]. ‘Navy Values and Signature Behaviours’, [cited 2019, 21 Mar]. Available from: <http://www.navy.gov.au/navy-values-and-signature-behaviours>.

 For example, see Smith, AM, Bohman, HR. ‘Medical Command and Control in Sea-Based Operations’, [US] Naval War College Review, Vol 59 no 1 pp.53-70, Summer 2006.

 To date, Navy has operated only one declared hospital ship (HMAS *Grantala*, as part of the Australian Naval and Military Expeditionary Force that captured German New Guinea in 1914). Every Australian Army Hospital Ship during both World Wars was only used to return casualties home from overseas, rather than to support maritime operations. See Goodman, R, *Hospital Ships*, Brisbane: Boolarong Publications, 1992.

 Sea Power Centre – Australia [Internet]. ‘Australian Maritime Doctrine (AMD): RAN Doctrine 1’, 2nd edition, 2010, pp. 12-13, [cited 2019, 21 Mar]. Available at: <http://www.navy.gov.au/sites/default/files/documents/Amd2010.pdf>.

 Air Power Development Centre [Internet]. ‘Australian Air Publication (AAP) 1000-D – The Air Power Manual’, 6th edition, 2013, pp. 66-69, [cited 2019, 21 Mar]. Available from: <http://airpower.airforce.gov.au/APDC/media/PDF-Files/Doctrine/AAP1000-D-The-Air-Power-Manual-6th-Edition.pdf>.

1. See Curtis, R. ‘Maritime Medical Diplomacy as an Instrument of Soft Power’, The Naval Contribution to National Security and Prosperity: Proceedings of the Royal Australian Navy Sea Power Conference 2012. Forbes, A Ed, pp. 243-258, Canberra: Sea Power Centre - Australia, 2012.

 On 24-25 December 1974, Tropical Cyclone Tracy hit Darwin, killing 71 people and leaving 30,000 of a population of 45,000 homeless. While the first medical teams arrived via Air Force C-130 the same day, Navy sailed *Melbourne* (CVS21), *Stalwart* (AD215), *Supply* (AO195), *Hobart* (DDG39), *Brisbane* (DDG41), *Vendetta* (DD08), and *Stuart* (DE48), from Sydney 24-48 hours later with relief supplies. Other ships included *Flinders* (A312), *Balikpapan* L126), *Brunei* (L127), *Tarakan* (L129) and *Betano* (L133). See Navy: Serving the Nation with Pride [Internet]. Mitchell, B, ‘Disaster Relief - Cyclone Tracy and Tasman Bridge’, [cited 2019, 21 Mar]. Available from: <http://www.navy.gov.au/history/feature-histories/disaster-relief-cyclone-tracy-and-tasman-bridge>.

 An Australian example is the ADF deployment to Rwanda in 1994-5: at that time, it was the largest medical deployment since WWII. See Londey, P, *Other People’s Wars: A History of Australian Peacekeeping.* Allen & Unwin: Crow’s Nest NSW, 2004.

 See National Critical Care and Trauma Response Centre (NCCTRC), *AusMAT: Australian Medical Assistance Team Training.* Version 3, NCCTRC, 2011.

See also Australian Civil-Military Centre (ACMC). ‘Same space – different mandates. A civil-military guide to Australian stakeholders in international disaster and conflict response’. ACMC, May 2012.

 For further information regarding CBRN issues, see Journal of Military and Veteran’s Health [Internet]. Heslop, D, Westphalen, N. ‘CBRN Defence in the Australian Defence Force’, Apr 2017, Vol 27 No 7; pp. 66-73, [cited 2019, 21 Mar]. Available from: [https://jmvh.org/article/medical-cbrn-defence-in-the-australian-defence-force](https://jmvh.org/article/medical-cbrn-defence-in-the-australian-defence-force/).

1. For further information, see Department of Defence [Internet]. Westphalen, N, ‘Assessing medical suitability for employment and deployment in the ADF’, *Australian Defence Force Journal*, Issue 203, Jan/Feb 2018, pp. 67-74, [cited 2019, 21 Mar]. Available from: <http://www.defence.gov.au/adc/adfj/Documents/issue_203/ADF%20Journal%20203_Article_Westphalen.pdf><http://www.defence.gov.au/adc/adfj/Documents/issue_202/Westphalen_July_2017.pdf>.
2. For an example when this principle was not applied, in 2003 HMAS *Manoora* (LPA52) undertook Operation FALCONER in the Middle East, followed by Exercise SEA EAGLE and then Operation ANODE in the Solomon Islands. 150 ship’s company personnel underwent the same pre-deployment health assessment three times within a three-month period. See Navy: Serving the Nation with Pride [Internet]. ‘HMAS *Manoora II’*, [cited 2019, 21 Mar]. Available from: <http://www.navy.gov.au/hmas-manoora-ii>.
3. For example, see Department of Defence [Internet]. ‘Report of Board of Inquiry into the Death of CAPT Paul Lawton’, [cited 2019, 21 Mar]. Available from: <http://www.defence.gov.au/Publications/COI/reports/Lawton_R.pdf>.
4. RAN Sea King helicopter ‘Shark 09’ was lost at Bamaga QLD during Exercise KANGAROO 95 on 30 Jul 95, while conducting a night AME. Although the patient clearly needed to be landed, it could have waited until daylight. See *Final Medical Report: Crash of Westland Sea King Mk50 N16-124 (09) at Bamaga (Far North Queensland) on 30 July 1995,* [copy held by author].

 See International Organization for Standardization [Internet]. ‘ISO 3100: 2018 Risk Management—Principles and Guidelines’, [cited 2019, 21 Mar]. Available from: <https://www.iso.org/standard/65694.html>.

 Federal Register of Legislation [Internet]. ‘Work Health and Safety Act 2011’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2011A00137/rss>.

 Australasian Faculty of Occupational and Environmental Medicine [Internet]. ‘Australian and New Zealand Consensus Statement on the Health Benefits of Work’, 2010, [cited 2019, 21 Mar]. Available at: <https://www.racp.edu.au/docs/default-source/advocacy-library/realising-the-health-benefits-of-work.pdf>.

This reference is currently being updated.

See also Australasian Faculty of Occupational and Environmental Medicine [Internet]. ‘Position Statement: What is Good Work? October 2013’, [cited 2019, 21 Mar]. Available at: <https://www.racp.edu.au/docs/default-source/advocacy-library/pa-what-is-good-work.pdf?sfvrsn=4>.

 The single-Service Navy MEDCAT system was replaced by the tri-Service ADF MEC system in 2000. The latter was last revised in 2011.

 Booklet, ‘Medical Classification Data, (reports from) 30 Jun 1996 – 1 July 2000’, [copy held by author], Undated.

 Booklet, ‘Medical Classification Data, (reports from) 30 Jun 1996 – 1 July 2000’, [copy held by author], Undated.

1. For a description of the general effectiveness of civilian general practitioners with respect to assessing medical suitability for ADF employment and deployment, see Department of Defence [Internet]. Westphalen, N, ‘Primary health care in the Australian Defence Force’, *Australian Defence Force Journal*, Issue 202, Jul/Aug 2017, pp. 91-97, [cited 2019, 21 Mar]. Available from: <http://www.defence.gov.au/adc/adfj/Documents/issue_202/Westphalen_July_2017.pdf>,.

For a civilian example of a medically preventable accident, see McInerney, PA, ‘Special Commission of Inquiry into the Waterfall Rail Accident Final Report Volume 1 January 2005’, pp. 165-172; [cited 2019, 21 Mar]. Available from: [https://web.archive.org/web/20080626015521/http://www.cityrail.info/general/waterfall.pdf](https://web.archive.org/web/20080626015521/http%3A/www.cityrail.info/general/waterfall.pdf),.

 ADF commanders are deemed ‘persons conducting a business unit’ (PCBU) per Federal Register of Legislation [Internet]. ‘Work Health and Safety Act 2011’, [cited 2019, 21 Mar]. Available from: <https://www.legislation.gov.au/Details/C2011A00137/rss>.

 For what is probably the most egregious recent ADF example when this requirement was not met, see Clarkson JW, Hopkins WA, and Taylor KV. ‘Chemical exposure of Air Force maintenance workers: report of the Board of Inquiry into F-111 (fuel tank) deseal/reseal and spray seal programs’, Canberra: Air Force Headquarters, 2001, 29 Jun.

 JeDHI Helpdesk email Defence eHealth System - Occupational Aetiology - Quick Reference Guide dated 1503 12 July 2018 refers:

It seems no guidance was provided for Defence health staff to ensure consistency as to what should and should not be considered work-related;

Workplace- and sports-related injuries are not recorded separately, which precludes differentiating work- versus sports-related treatment costs or Lost Time Injury Frequency Rates’ and

It does not initiate the compensation claims process (which still has to be done separately).

Hence, the shortfalls identified in this paper largely remain extant.

 Department of Defence [Internet]. Westphalen N. ‘Occupational and environmental medicine in the Australian Defence Force’. *Australian Defence Force Journal*. Nov/Dec 2016; Issue 200 pp. 49-58. [cited 2019, 21 Mar]. Available from:: [<http://www.defence.gov.au/ADC/ADFJ/Documents/issue_200/Westphalen_Nov_2016.pdf>](http://www.defence.gov.au/ADC/ADFJ/Documents/issue_200/Westphalen_Nov_2016.pdf%3Ef).

 Journal of Military and Veteran’s Health [Internet]. Pope, R, and Orr, R. ‘Incidence rates for work health and safety incidents and injuries in Australian Army Reserve vs full time soldiers, and a comparison of reporting systems’, Apr 2017, Vol 25 No 2; pp. 16-25, [cited 2019, 21 Mar]. Available from: <https://jmvh.org/wp-content/uploads/2017/07/Original-Artical-Incidence-rates.pdf>.

 For example, see Royal Australian College of General Practitioners [Internet]. ‘Guidelines for preventive activities in general practice’, 9th edition, 2018, [cited 2019, 21 Mar]. Available from: <https://www.racgp.org.au/FSDEDEV/media/documents/Clinical%20Resources/Guidelines/Red%20Book/Guidelines-for-preventive-activities-in-general-practice.pdf>.

 An example with some HPP elements is the Royal Australian Navy Alcohol and Other Drugs Program (RANAODP), a peer support program established in 1984 providing education, counselling and intervention/treatment options for members wishing to address problematic gambling; tobacco; alcohol; and other drug use.

 For example, see Zajtchuk R., Jenkins D.P, Bellamy R.F, and Ingram V.M, *Textbook of Military Medicine, Part 1, Volume 2:* *Medical consequences of nuclear warfare*, TMM Publications: Falls Church,1996; also, Emergency Management Australia, *Health aspects of chemical, biological and radiological hazards*, Australian Emergency Manuals Series Part 3, Volume 2, Manual 3, Canberra: Paragon Printers, 2003.

 For example, see Kearney, GE, Creamer M, Marshall M, Goyne A (eds). *Military stress and performance: the ADF experience*, Melbourne: Melbourne University Press, 2003. For a history of the entity currently referred to as Post-Traumatic Stress Disorder (PTSD), see Shepard, B, *A war of nerves: soldiers and psychiatrists 1914-1994*, London, Pimlico, 2002. For general descriptions of life and death in wartime, also Ellis J, *The Sharp End of War: The Fighting Man in World War II*. London: Book Club Associates, 1980.

 At the time of writing, the most recent occasion where RAN health staff treated BCas was in 2004, when HMAS *Stuart* (FFH153) did so for a boarding party from USS *Firebolt* (PC10)after they were hit by a suicide dhow in the Persian Gulf. See Nash, D, Stevens, D, *Australia’s Navy in the Gulf: from COUNTENANCE to CATALYST 1941-2006’*, p. 82, Silverwater NSW: Topmill, 2006.

The last occasion involving RAN BCas was in 1968, when HMAS *Hobart* (DDG38) was hit by missiles in a ‘blue-on-blue’ accident during combat operations off Vietnam in 1968. See Fairfax, D, *Royal Australian Navy in Vietnam*, pp. 59-60, Canberra: Australian Government Publishing Service, 1980.

With respect to multiple non-battle injuries, HMA ships *Albany* (ACPB86) and *Childers* (ACPB93) provided initial care for over 40 ADF and civilian casualties, after a suspected illegal entry vessel exploded and sank off Ashmore Island in 2009. See Department of Defence [Internet]. ‘Compassion and Courage’, [cited 2019, 21 Mar]. Available from: <http://www.defence.gov.au/siev36/fullstory.asp>.

The last occasion involving multiple shipboard RAN non-battle fatalities was in 1998, when HMAS Westralia (AO195) had an engine room fire in Cockburn Sound off Fremantle WA. See Department of Defence, ‘Report of the Board of Inquiry into the fire in HMAS Westralia on 5 May 1998: Report / Annexes’, Volume 1, Canberra: Defence Publishing Services, 1998.

See also Midson, D.W, The Lessons Learned from Hydrogen Sulphide Incidents in the Royal Australian Navy, *Naval Historical Review*, Mar 2011, Volume 32 Number 1, pp. 16-18.

 For example, see Williams G, *The Prize of All the Oceans: The Triumph and Tragedy of Anson’s Voyage Around the World.* HarperCollins: London, 1999. Of 1697 men who left England under Commodore George Anson in September 1740, 1240 (63%) had died by the time the survivors returned in June 1744, of whom only four were killed in action.

For a more egregious example, Rear Admiral Francis Hosier lost 4000 men (including himself and two successors-in-command) to disease while blockading Porto Bello in central America in 1726-7; at no time did his force exceed 3300 men. See Lloyd, C and Coulter, JLS, *Medicine and the Navy 1200-1900*, Volume 3 pp. 97-99. E&S Livingstone: London 1961.

See also Writer J.V, DeFraites, R.F, and Keep, L.W, ‘Non-battle injury casualties during the Persian Gulf War and other deployments’, *Preventive Medicine*, 2000, Vol. 18, Issue 3, Supplement 1, pp. 64-70.

See also Lacina B. and Gleditsch N.P, 2005, ‘Monitoring trends in global combat: a new dataset of battle deaths’, *European Journal of Population*, 2005, Issue 21, pp. 145-66.

See also New England Journal of Medicine [Internet]. Chretien, J-P, ‘Protecting Service members in war: non-battle morbidity and command responsibility’, 2012, Volume 366 Number 8 pp. 677-679, [cited 2019, 21 Mar]. Available from: <http://www.nejm.org/doi/pdf/10.1056/NEJMp1112981>..

See also Tyquin, M.B, *Gallipoli: The Medical War. The Australian Army Medical Services in the Dardanelles Campaign of 1915*, NSW University Press, Kensington NSW, 1993.

See also Slim, W.J, *Defeat into Victory*, Book 2 Chapter 3: p177. Cassell and Company: London; 1956.

See also Coulter, J.L.S (ed), ‘Royal Naval Medical Services’, *Medical History of the Second World War*, HMSO: London, Volume II (Operations), 1956.

See also Walker A.S, ‘Medical Services of the RAN and RAAF’, *Australia in the War of 1939-1945*, Medical Series, Volume 4 pp. 1-168. Canberra: Australian War Memorial, 1961.

 See Maguire, F., Cilento, R.W, ‘The Occupation of German New Guinea’, *Official History of the Australian Army Medical Services, 1914–1918*, ed Butler, A.G, Volume I Part III pp. 781-810, Melbourne: Australian War Memorial, 1930.

See also Walker, A.S, ‘The Island Campaigns’, *Australia in the War of 1939-1945*, Medical Series, Volume 3. Canberra: Australian War Memorial, 1957.

See also O’Keefe, B with Smith FB, *Medicine at War: Medical Aspects of Australia’s involvement in Southeast Asian Conflicts 1950-1972*, Allen and Unwin: St Leonards NSW; 1994.

See also Horner, D, Connor, J, ‘The Good International Citizen: Australian Peacekeeping in Asia, Africa and Europe, 1991-1993’, *The Official History of Australian Peacekeeping Humanitarian and Post-Cold War Operations*, Volume III, Melbourne: Cambridge University Press, 2014.

See also Breen, B, ‘The Good Neighbour: Australian Peace Support Operations in the Pacific Islands 1980-2006’, *The Official History of Australian Peacekeeping Humanitarian and Post-Cold War Operations*, Volume V, Melbourne: Cambridge University Press, 2016.

See also Bullard, S, ‘Australia’s Overseas Emergency Relief Operations 1918-2006’, *The Official History of Australian Peacekeeping Humanitarian and Post-Cold War Operations*, Volume VI, Melbourne: Cambridge University Press, 2017.

See also Australian National Audit Office [Internet]. ‘Management of Australian Defence Force Deployments to East Timor Performance Audit: Auditor-General Audit Report No.38 2001–02’, Chapter 5 Figure 9 [cited 2019, 21 Mar]. Available from: <https://www.anao.gov.au/sites/g/files/net616/f/anao_report_2001-2002_38.pdf>.

 For example, in May 1987 USS *Stark* (FFG31) was hit by two Exocet missiles in the Persian Gulf. Both missiles exploded in or near two mess decks resulting in 29 dead, eight died of wounds, and 21 wounded. The injuries included superficial and partial-thickness burns, shrapnel injuries, and cuts and abrasions. See Levison, J.L, and Edwards, R.L, *Missile Inbound: The Attack on the Stark in the Persian Gulf*, Naval Institute Press: Annapolis Maryland USA, 1997.

For another example, in April 1988 USS *Samuel B Roberts* (FFG58) was mined in the Persian Gulf. The mine exploded under her engine room, resulting in ten wounded, four of whom required evacuation home with burns and fractures. See Peniston, B, *No Higher Honor: Saving the USS Samuel B. Roberts in the Persian Gulf*, Naval Institute Press: Annapolis Maryland USA, 2006.

1. For a civilian example, see ABC News [Internet]. Whiting, N, ‘Gastro outbreak on Ovation of the Seas cruise ship, almost 200 ill’, 2017, 05 Dec, [cited 2019, 21 Mar]. Available from: <http://www.abc.net.au/news/2017-12-05/gastro-outbreak-on-ovation-of-seas-cruise-ship/9226346>.

It should be noted that compared to cruise ship passengers, ADF units deployed for amphibious operations are likely to pose an even greater infectious disease threat on re-embarkation.

 Harrex, WH, Wilkins, PS, ‘A review of compensation claims for chondromalacia patellae decided by the Department of Veteran’s Affairs in 2006 and 2007’, June 2009 (unpublished).

1. Department of Veteran’s Affairs [Internet]. ‘DVA Annual Reports 2017-18’, Table 2: Numbers of benefit recipients by type of benefit 2013–14 to 2017–18, p. 22, [cited 2019, 21 Mar]. Available from: https://www.dva.gov.au/sites/default/files/files/about%20dva/annual\_report/2017-2018/annrep2017-18.pdf.
2. Department of Veteran’s Affairs [Internet]. ‘DVA Annual Reports 2017-18’, p. 56, [cited 2019, 21 Mar]. Available from: https://www.dva.gov.au/sites/default/files/files/about%20dva/annual\_report/2017-2018/annrep2017-18.pdf.
3. Australian Institute of Health and Welfare [Internet]. ‘Health expenditure Australia 2016–17’, p. 16, [cited 2019, 21 Mar]. Available from: <https://www.aihw.gov.au/getmedia/e8d37b7d-2b52-4662-a85f-01eb176f6844/aihw-hwe-74.pdf.aspx?inline=true>.
4. Department of Veteran’s Affairs [Internet]. ‘DVA Annual Reports 2017-18’, p. 47, [cited 2019, 21 Mar]. Available from: <https://www.aihw.gov.au/getmedia/6b21b4dc-5fd6-4077-8c75-7a6bab09416d/15405.pdf.aspx?inline=true>.
5. Department of Veteran’s Affairs [Internet]. ‘DVA Annual Reports 2017-18’, p. 22, Table 2[cited 2019, 21 Mar]. Available from: https://www.dva.gov.au/sites/default/files/files/about%20dva/annual\_report/2017-2018/annrep2017-18.pdf.
6. SafeWork Australia [Internet]. ‘Australian workers’ compensation statistics, 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/australian-workers-compensation-statistics-2012-13.pdf>.

This reference excludes compensation claims by ADF personnel.

1. SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.
2. SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.

Safework Australia explains that, because a small number of uncharacteristically long absences or high payments can skew the average (mean), median payment and median time lost from work of serious workers’ compensation claims approximate to a ‘typical’ claim.

1. SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.

Safework Australia explains that payments include compensation paid to claimants for: benefits paid to an employee or the employee’s surviving dependents; outlays for goods and services such as medical treatment, funeral expenses, rehabilitation services; non-compensation payments such as legal costs, transport and interpreter services; and common law settlements, which may incorporate estimates of future liability and indirect costs such as loss of productivity.

1. SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.
2. SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.

 SafeWork Australia [Internet]. ‘The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community 2012–13’, [cited 2019, 21 Mar]. Available from: <https://www.safeworkaustralia.gov.au/system/files/documents/1702/cost-of-work-related-injury-and-disease-2012-13.docx.pdf>.

Safework Australia explains that the definition used for the term ‘serious worker’s compensation claim’ is:

“A workers’ compensation claim for an incapacity requiring an absence from work of one working week or more, lodged in the reference year, and accepted for compensation by the jurisdiction by the date the data are extracted for publication.

Claims in receipt of common law payments are also included.

Claims arising from a journey to or from work or during a recess period are not compensable in all jurisdictions, and are excluded.”

 See Australian National Audit Office [Internet]. ‘Performance Audit Report No. 34 1996-97: Australian Defence Force Health Services’, 1997, 27 May, [cited 2019, 21 Mar]. Available at: <https://www.anao.gov.au/sites/default/files/ANAO_Report_1996-97_34.pdf>.

1. See [Legal Aid Justice Center Internet]. Malins, J, ‘The Ambulance Down in the Valley’, [cited 2019, 21 Mar]. Available from: <https://www.justice4all.org/wp-content/uploads/The%20Ambulance%20Down%20In%20The%20Valley.pdf>.

 The ADF Health Surveillance System (EpiTrack) website is only available on the Defence Intranet. As it is primarily designed for land-based operations and deployments, EpiTrack is not consistently applied by all ADF health facilities. The data is therefore substantially incomplete.

1. Australian Institute of Health and Welfare [Internet]. ‘Australia’s health 2010’, *Australian Institute of Health and Welfare*, pp. 273-7, [cited 2019, 21 Mar]. Available from: https://www.aihw.gov.au/getmedia/42ab3686-c2ad-4495-b0f7-5c5e7889d46b/ah10.pdf.aspx?inline=true.
2. Cooke, G, Valenti, L, Glasziou, P, and Britt, H, ‘Common general practice presentations and publication frequency’, ***Australian Family Physician*, Vol.** 42, No. 1/2, January/February 2013, pp. 65-8.
3. Department of Veteran’s Affairs [Internet]. ‘DVA Annual Reports 2014-15’, [cited 2019, 21 Mar]. Available from: <https://www.dva.gov.au/sites/default/files/files/about%20dva/annual_report/2014-2015/annrep2014-15.pdf>
4. Sydney University Family Medicine Research Centre [Internet]. ‘General practice activity in Australia 2014-15’, [cited 2019, 21 Mar]. Available from: <https://ses.library.usyd.edu.au//bitstream/2123/13765/4/9781743324530_ONLINE.pdf>.
5. For a country-by-country list of medical conditions that can pose a threat to visiting Navy and other ADF members in the northern archipelago and south Pacific, see Department of Foreign Affairs and Trade [Internet]. ‘SmartTraveller: Countries’, [cited 2019, 21 Mar]. Available from: <http://smartraveller.gov.au/countries/Pages/default.aspx>.

 In 2015, the Australian health care system had **102,805** medical practitioners in more than 80 specialties, only 33.1 per cent of whom were general practitioners. See Australian Institute of Health and Welfare [Internet]. ‘How many medical practitioners are there?’, [cited 2019, 21 Mar]. Available from: <https://www.aihw.gov.au/reports/workforce/medical-practitioners-workforce-2015/contents/how-many-medical-practitioners-are-there>.

 See Defence Reserves Association [Internet]. Kafer, B, ‘Optimal Use of the Naval Reserve as Part of the Total Navy’, [cited 2019, 21 Mar]. Available from: <https://dra.org.au/conference-2016-item/23646/optimal-use-of-the-naval-reserve-as-part-of-the-total-navy/?type_fr=684>.