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# ANNUAL REVIEW

**2016-17**

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## 2016-17 Annual Review – Executive Summary

1. I am pleased to present the Joint Health Command (JHC) Annual Review for financial year 2016-2017 (FY 16-17). Highlights of this year were: the formal adoption of new mission and vision statements; a marked improvement in customer relationships; increased focus on the JHC role in the Deployed Operational Health System (DOHS); implementation of the new on-base rehabilitation service delivery model; publication of the Defence Health Manual; JHC involvement in, and response to, various reviews and inquiries in the suicide prevention space; establishment of the Next Generation Health Services project; and a maturation of JHC business processes and reduction in internal bureaucracy. Particularly notable was that JHC was both on budget and at its FTE cap at the end of the FY.

2. JHC continues to innovate and improve the way we deliver health services for the Australian Defence Force. I would like to thank all Joint Health Command members for their efforts and contributions that ensure the Command continues to develop, deliver and sustain a world-class military health system.

3. **2017-18 Outlook.** From 1 July 2017, JHC moves with Joint Logistics Command and Australian Defence College and the newly established Information Warfare Division to form the Joint Capability Group under the new Australian Defence Force Headquarters. This move recognises the health effect provided by the Command as one of Defence's key joint capabilities. The year ahead holds many challenges but much to look forward to, including: the publication of the Defence Mental Health and Wellbeing Strategy 2018-2023 and its subordinate action plans; formalisation of JHC's role in coordinating the DOHS; piloting of a streamlined medical process for ADF members transitioning out of full time service; roll out of the Defence Mental Health & Wellbeing Continuous Improvement Framework and other initiatives; and finalisation of the HQ Realignment Project.



**T. SMART AM**

AVM

Commander Joint Health and  
Surgeon General Australian Defence Force

05 December 2017

## **Organisation Overview**

1. JHC as part of the Vice Chief of Defence Force Group (VCDFG) provides health services to support current and future operations in order to maintain health preparedness and enhance Australian Defence Force (ADF) capability.
2. To effect this, JHC is responsible for the following:
  - a. providing strategic level health advice
  - b. participating in research to inform and improve health policy, programs and services
  - c. developing strategic health policy and programs
  - d. delivering a full suite of health care services to ADF members in the garrison environment, including mental health and rehabilitation
  - e. reviewing and assuring health policy, programs and services to drive continuous improvement
  - f. developing and maintaining strategic partnerships within Defence, other government agencies and private institutions
  - g. coordinating current and developing future deployed operational health capabilities, and
  - h. lead capability coordination of health materiel.

## **2016-17 Command Priorities**

3. The Command's six priorities are:
  - a. Being trusted to deliver high quality health care
  - b. Customer engagement
  - c. Shaping the strategic environment
  - d. Positioning for the future
  - e. Understanding and refining our business
  - f. Developing a positive culture including improved governance and reporting

## Health Service Delivery

4. JHC is responsible for the delivery and management of quality, safe, efficient and effective health care to ADF personnel within Australia and on non-operational postings overseas. Garrison health services are coordinated through eight Joint Health Units and delivered through 58 health facilities (health centres or clinics). Health services provided to ADF members include:

- a. Primary health care
- b. Dental services
- c. Occupational health services
- d. Specialist consult services
- e. Physiotherapy
- f. Rehabilitation
- g. In patient services, and
- h. Mental health and Psychology services.

5. Garrison health services are provided via a blended workforce of ADF (full time posted to JHC, augmentees from single Service operational units, and reservists), APS and service providers under the ADF Health Services Contract (ADFHSC) delivered by Medibank Health Solutions (MHS).

6. The Defence Garrison Health System (GHS) is enabled by the ADFHS contract with MHS that comprises five service packages:

- a. On-base Services delivered through a nationally contracted health service provider workforce of approximately 835.5 full time equivalent personnel.
- b. Off-base Services providing access to a full range of medical specialist and allied health services, including in-patient services, through a national network currently consisting of more than 5 000 medical specialists, 10 000 allied healthcare providers and 280 hospitals
- c. Health Hotline Services (HHL) delivered through the MHS tele-health hotline service
- d. Pathology Services through a national provider network, and
- e. Imaging & Radiology Services (I&R) through a national provider network.

7. JHC has continued to realise efficiencies through the ADFHS contract's nationally consistent and centralised key objectives, including key performance indicators, service delivery standards, contract management practices, reporting and invoicing.

### *Service Delivery Measures*

8. For services delivered off-base, detailed rate of effort and usage data is reported on a monthly basis by MHS, enabling JHC to understand the type, number, location and cost of services being provided to ADF members. This, combined with data from DeHS allows JHC to utilise the data to make informed decisions about the delivery of health services including the most clinically appropriate and efficient model of care.
9. The volume of data available is significant and JHC continues to develop and refine data management procedures and reporting requirements.
10. Table 1 highlights service volumes since commencement of the contract.

**Table 1 – Service Volumes delivered – ADFHS Contract**

Service	Unit of Measure	2013-14	2014-15	2015-16	2016-17
On-base health practitioner hours	Hours	1 409 964	1 425 919	1 436 214	1 597 939
Pathology	Services delivered	270 480	268 922	283 860	307 231
I&R	Number of Procedures	70 502	67 769	69 331	70 642
HHL (1800 IMSICK)	Calls billed	11 099	11 674	12 226	13 579
Rehabilitation	Assessments/services	290 878	336 375	433 260	496 407
Optical	Tests and items	136 914	133 434	134 024	137 884
Off-Base Services <sup>1</sup>	Individual services	536 074	542 802	456 419	535 753

11. **On-base.** A contract extension negotiated with Medibank Health Solutions was implemented in November 2016 and saw the provision of the on-base contracted workforce change from a single provider to multiple providers. The multi provider model gives greater flexibility for filling contractor positions and backfilling planned and unplanned leave.
12. Of the 1,597,939 on-base health practitioner hours delivered, 19,327 were planned surge hours and 792 unplanned surge hours. The on-base health practitioner workforce had less unplanned leave hours (3.3%) than industry comparison (4.4%)
13. **Pathology.** Approximately 29% of all pathology referrals were for general/routine chemistry tests, 16.8% for microbiology tests and 13.3% for haematology tests. General/routine chemistry tests accounted for 24.5%, microbiology tests 19.44% and tissue pathology 12.5% of the total pathology costs.
14. **Imaging and Radiology.** Approximately 30% of all imaging and radiology referrals were for x-rays, 25% for ultrasounds and the top three procedures conducted were x-rays of the foot, chest and hand. Magnetic Resonance Imaging accounts for 36% of the total cost of imaging and radiology services with Computerised Tomography accounting for 18.6% and diagnostic radiology for 13.5%.

<sup>1</sup> Allied Health, Civilian Hospital, Medical Specialists

15. **Health Hotline.** Of the 13,579 calls handled through 1800IMSICK, 85% of the calls occurred between the hours 0600 - 2359 and 37% between the hours 0700-1200. Sundays are the busiest days with 32% more calls than the average day. Approximately 11.5% of the total number of calls to 1800IMSICK resulted in a recommendation to attend the emergency department immediately with 2.7% of calls transferred directly to emergency services.

### *Failure to Attend*

16. Failure to attend health care appointments creates inefficiency within the ADF health care system resulting in additional expenditure, increased administration, wasted appointments and increased wait times. The resulting delay in clinical care may also be detrimental to the member's health or operational readiness.

17. In 2016-17, the average monthly volume of off-base failure to attend was 360 appointments with the average monthly on-base failure to attend equating to a loss of 296 days of clinical services.

18. JHC continues to work with Navy, Army and Air Force to remediate failure to attend health care appointments.

### *Rehabilitation services*

19. Rehabilitation services are provided to members through the ADF Rehabilitation Program and the Rehabilitation for Reservists Program. Services include occupational and psychosocial rehabilitation.

20. In 2016-17, 9,354 ADF members received care through the ADF Rehabilitation Program. The average duration for Goal 1 and 2 cases (those returning to duty) decreased by 20.4% to 25.7 weeks with Goal 3 cases (those transitioning out of service) increasing by 13.3% to 59.5 weeks.

21. Members with open rehabilitation cases, who have limited or no ability to undertake suitable duties in their primary role, have access to psychosocial rehabilitation services in the form of Meaningful Engagement activities. For FY 16-1717, 217 applications for Meaningful Engagement were supported.

22. Vacancies in the APS rehabilitation workforce continued to present significant challenges this FY, reducing the ability to manage rehabilitation services internally and resulting in an increased volume of external referrals. These vacancies were due to a variety of reasons including maternity leave, flexible work arrangements associated with maternity leave, resignations and inability to recruit to vacancies.

23. On 9 May 2017 the improved Rehabilitation Service Delivery Model was implemented with establishment of 88 Full Time Equivalent (FTE) external rehabilitation consultants on base in or near Garrison Health Facilities. This model enhances governance of all rehabilitation services, with improved oversight of external referrals as well as enhancing communication between member's units and rehabilitation services.

### ***Mental Health services***

24. A comprehensive range of mental health services are available to ADF members. From 01 July 2016 to 30 June 2017, 15,118 referrals for mental health and psychology services were recorded. Just under half (49.7%) of these referrals were for mental health services, with 63% of these self-referrals and 37% medical referrals. Psychology services made up the other half with 46% of these were Mental Health Screening requests, 23% Command referrals, and 31% request for in-Service occupational suitability assessments. The high rate of self-referrals may be indicative that MH awareness amongst ADF members is increasing.

25. For the same period, mental health and psychology personnel conducted 2,130 multidisciplinary case allocation meetings and discussed 13,468 cases to ensure that the services provided matched the member's specific needs. Additionally, 877 multidisciplinary case review meetings were conducted during which 7,896 cases were presented.

### ***Dental services***

26. There were 137,955 booked appointments for dental services, and 10131 sick parade presentations in FY 16-17. Of the booked appointments 55,879 were for annual dental assessments and 17,143 for dental hygiene review.

### ***Service Delivery Quality Measures***

27. JHC monitors and assesses a number of Garrison health clinical services performance measures related to the quality and timeliness of health care. This informs JHC's planning and decision making in relation to health care service delivery to the ADF dependency.

28. **Compliments and Complaints.** Table 2 highlights figures for compliments and complaints for the period July 2016 to June 2017 (inclusive). There was a 7% decrease in the number of compliments and an 11% decrease in the number of healthcare complaints reported in 2016-17 compared with 2015-16.

**Table 2 – Compliments and Complaints 2016-17**

	2013-14	2014-15	2015-16	2016-17
Compliments	569	610	611	570
Complaints	1230	1114	810	718

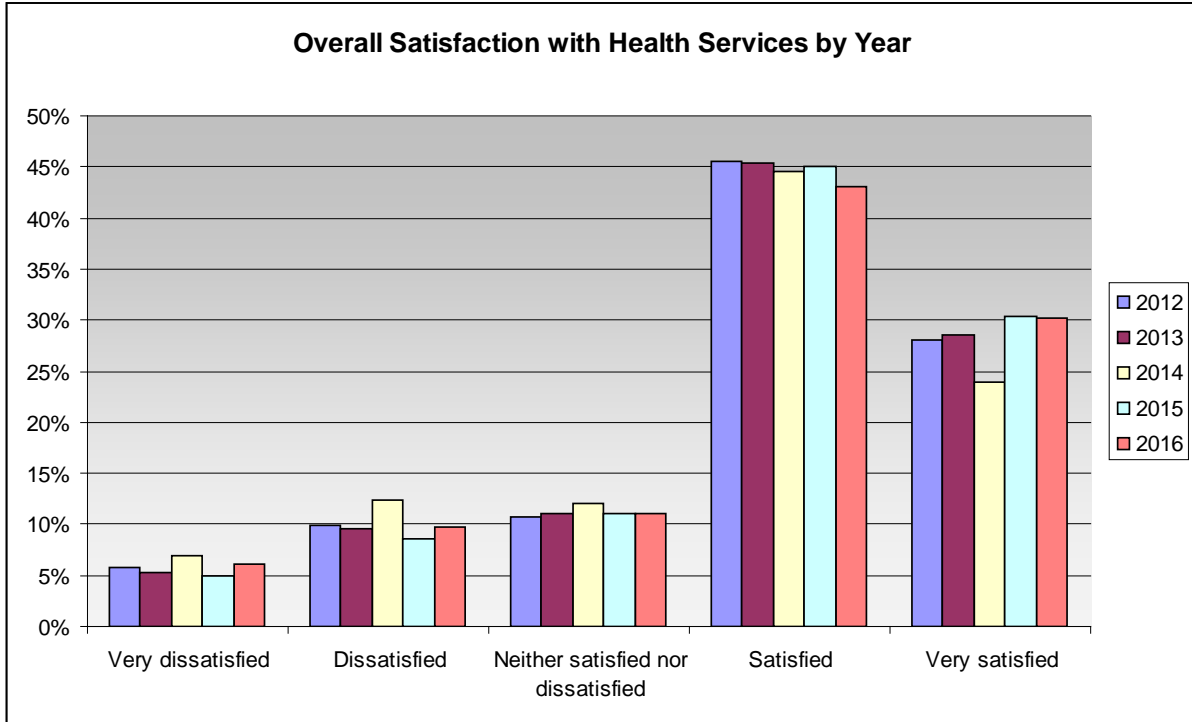
29. **Customer Satisfaction.** The Garrison Health Patient Satisfaction Survey, first conducted in 2012, is now an annual activity conducted between September and December of each year. The 2016 survey achieved a response rate of 18.2% (7,866 responses) which is a significant drop from previous years, however the total number of responses for the 2016 survey is similar or higher than for all survey years other than 2015. Some key findings were:

- a. Results are slightly lower than 2015, however this is not a statistically significant change.
- b. The majority of respondents regard health services as good.

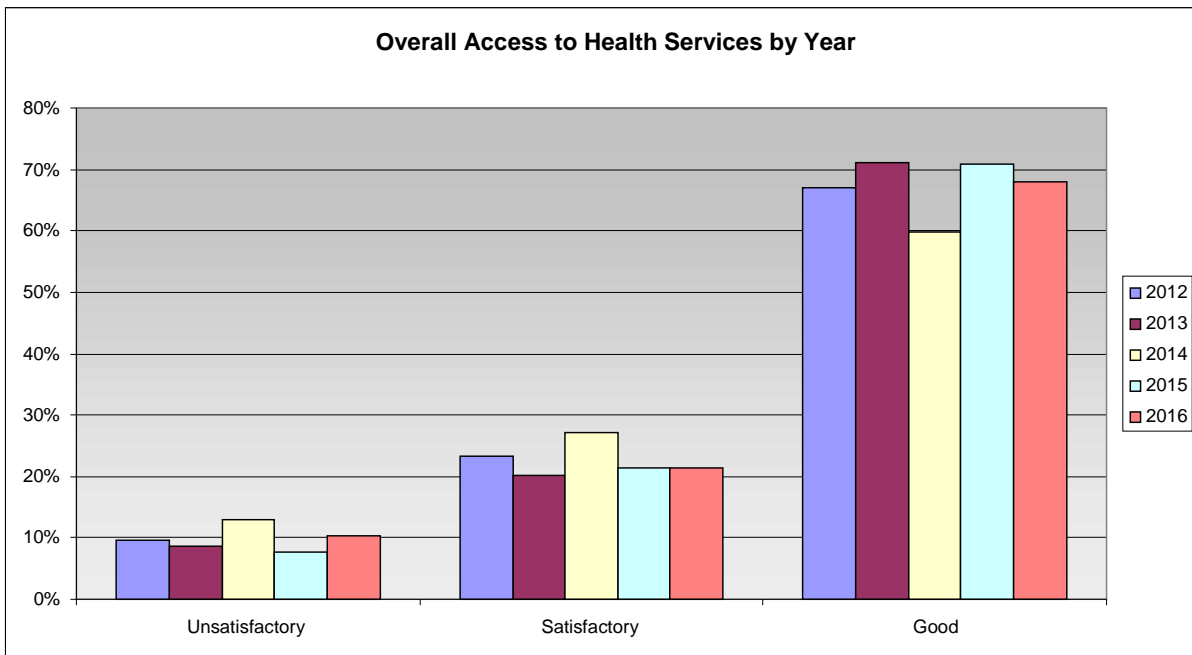


- c. The percentage of *very satisfied* respondents has remained unchanged between the 2015 and 2016 surveys and these two years have yielded the highest rate of *very satisfied* respondents since the survey began in 2012. Figure 1 tracks overall satisfaction with health services over the five survey years. Figure 2 tracks satisfaction with access to health services over the five survey years.

**Figure 1: Overall satisfaction of health service, 2012-16**



**Figure 2: Overall Satisfaction with overall access to health services, 2012-2016**



30. **Clinical Incidents.** Clinical incidents by category are shown in Table 3. A clinical incident is defined as an event or set of circumstances which could have, is perceived to have, or did lead to unintended or unnecessary harm to a participant in healthcare. Clinical incidents differ from complaints; they are usually identified by a clinician and are clinically significant. Types of clinical incidents include the prescribing of an incorrect medication to a patient or a missed diagnosis. A total of 355 clinical incidents were reported during FY 16-17, a 16% reduction on the previous year. The rank order of the top 7 incident types, comprising 77% of all incidents, was unchanged from the year prior.

**Table 3: Clinical Incidents**

<b>Incident Type</b>	<b>No.</b>	<b>%</b>
Clinical /Treatment	80	22
Medication	64	18
Clinical Documentation	42	12
Administration	34	10
Communication/Information	18	5
Clinical Handover	17	5
Injury	17	5
Cold Chain Breach	14	4
Equipment	14	4
Professional Conduct	12	3
Medical Records	11	3
Other (5 different factors)	32	9
<b>Total</b>	<b>355</b>	<b>100</b>

31. **On-base Wait Times.** Average national wait times in days for non-urgent appointments over FY 16-17 are listed in Table 4. The data is indicative of the predominant single Service usage of the Health Centre but should not be interpreted absolutely. For example, the facility at Edinburgh has been classified as an Air Force dependency but also has a large Army dependency. These wait times are a reflection of the capacity of the health services and are not a direct measure of the quality of the health services actually provided. The wait times for on-base services benchmarks are set by JHC in consultation with single Services.

32. On-base wait times are influenced by a number of factors including operational tempo (pre and post deployment healthcare), dependency profile and staffing levels. All health facilities have continued to consistently provide same-day access for urgent care with non-urgent cases seen based on clinical and operational priority.

33. The national average non-urgent on-base wait time for all appointments decreased in 2016-17 when compared to 2015-16 with the greatest decrease of seven days for PDE.

**Table 4: National Non-Urgent On-base Wait Times (in average days)**

	Navy Base Facilities	Army Base Facilities	RAAF Base Facilities	Tri Service Facilities	National	KPI (Business days)
<b>Medical Appointment</b>	10.3	6.1	11.2	10.5	9.5	5
<b>Mental Health Appointment</b>	2.2	4.5	6.4	4.8	4.47	8
<b>Physiotherapy Appointment</b>	4.6	3.7	4.7	3.8	4.2	8
<b>Dental Appointment</b>	9.7	10.7	6.9	10.3	9.4	10
<b>PHE Appointment</b>	14.4	9.6	10.2	16.4	12.65	20
<b>PDE Appointment</b>	9.8	10.4	7.6	16.8	11.15	20

34. **Off-base Wait Times.** Access to specialist services is determined by the clinical or operational priority required for each referral. It is also influenced by a number of outside factors including community supply and demand for services. Wait times for most disciplines are consistently better than civilian standards. The average wait time for ADF personnel to see a medical specialist was 17.1 business days during 2016-17.

35. Table 5 provides the average national wait time for the top eight most referred to medical specialties over the 2016-17 year. The top eight most referred medical specialties have remained relatively the same as 2015-16 with the exception that Otolaryngology services have replaced Psychiatry services in the top eight. The average national wait time has decreased by approximately 1 day across seven of the top eight medical specialties when compared to 2015-16. The average wait time for a Dermatology appointment increased by 1 day in 2016-17. These figures are based on the average time taken from Central Appointment Team receiving the referral to the appointment date and are a reflection of the capacity of the services, not a direct measure of the services actually provided.

**Table 5: Off Base Average National Wait Times**

Specialist Group	Average Wait (days)
Orthopaedic Surgeon	12.45
Dermatology	21.81
Other Physician services <sup>2</sup>	16.23
Cardiology	10.81
Ophthalmology	13.52
Otolaryngology	20.27
General Surgery	12.47
Obstetrics and Gynaecology	16.12

36. The off-base service provider network increased by 336 allied health and medical specialists, an increase of 4.7%, with the total number of providers now at 15,451. The

<sup>2</sup> Other Physician Services includes the below specialties combined - Addiction Medicine, Allergist, Emergency medicine, Endocrinologist, General Physician, Haematologist

increased number of providers has reduced the average distance members are required to travel for Allied Health appointments by 13km and Medical Specialist appointments by 7 km.

37. JHC have implemented a number of on-base specialist clinics since the commencement of the ADF Health Services Contract (ADFHSC). Three on-base Dermatology Specialist Clinics in Darwin, Townsville and Canberra continued throughout 2016-17 with 616 ADF members attending 793 appointments and approximately 2,750,000 km saved in members travel. Two on-base Psychiatrist Specialist Clinics in Townsville and Brisbane also continued with 627 ADF members attending 844 appointments.

### ***Garrison Health Innovations***

38. A number of initiatives were implemented under the ADFHSC during FY 16-17. The aim of these initiatives is to improve access to health care in locations where community supply is limited and to realise further efficiencies in the delivery of health care. This year these initiatives include:

- a. implementation of a new Rehabilitation Model which includes external rehabilitation consultants working on base (as mentioned above)
- b. development and implementation of two new Medical Officer position descriptions, “contracted Registrar” and “Early Fellow” to increase supply of contracted doctors
- c. weekend transfer of Albatross Health Centre inpatients to Nowra or Shellharbour Private Hospital

### **Defence eHealth System (DeHS)**

39. The Defence eHealth System was introduced across Defence in 2014 to provide a single e-health record from recruitment to discharge, and beyond, for all ADF members. The combined e-health record is accessed by Defence’s multi-disciplinary team to inform and shape the delivery of the highest quality of healthcare possible while ensuring clinical safety is paramount.

40. The System is accessed throughout Australia at more than 60 physical locations by more than 4,000 active users who access the System in a variety of roles from primary care clinicians to mental health providers to allied health practitioners and pharmacists.

41. Supported by a team of ICT and business specialists, the core System data and information is leveraged through reporting and business intelligence to assist with the delivery of healthcare. These capabilities support clinical safety, clinical management, service delivery, resource management and corporate management by providing information and intelligence previously unavailable within Defence.

42. The performance of DeHS in FY 16/17 has been problematic. The platform is at times unstable, and this has hampered the ability to further develop and enhance the system to implement desired capability requirements, including those that are safety and efficiency related. The contract with the vendor, DXC. Technology, was extended this FY to 31 Mar 18, and ongoing discussions between JHC, Chief Information Officer Group (CIOG) and DXC to improve stability and performance continued throughout the year.

## **Strategic Mental Health, Psychology and Rehabilitation Activities**

43. Issues relating to the mental health of serving and ex-serving ADF personnel continued to generate considerable ministerial, media and public interest throughout FY 16-17. This remains a strategic reputational issue for Defence and one that will take a whole of organisational approach to manage. ADF Mental Health Programs for FY 16-17 are listed at Annex A.

### ***Mental Health Programs and Initiatives***

44. The ADF Mental Health and Wellbeing Strategy 2011 and the supporting ADF Mental Health and Wellbeing Action Plan 2012-2015 continued to set the mental health priorities for Defence in FY 16/17. This was in part due to a number of inquiries, reviews and research activities, particularly around suicide prevention services, which delayed development of the next Defence Mental Health and Wellbeing Strategy 2018-2023, now due for release in late 2017.

45. New strategic priorities include enhancing the mental health workforce, improved mental health training for ADF personnel and providers, enhanced prevention strategies including better research and surveillance, enhanced mental health rehabilitation and transition services, greater involvement of families in the mental health programs and support for ADF members, and improved facilities from which mental health services are delivered.

46. Throughout FY 16-17, JHC worked closely with Navy, Army, Air Force and DVA to progress a range of initiatives across the areas of resilience, mental health promotion, early intervention, evaluation, and research.

47. Progress against the previous Action Plan continues to be monitored by JHC with advice from the ADF Mental Health Advisory Group (MHAG). The MHAG was established in 2010 and comprises external mental health advisors who are eminent in their field, and representatives from the single Services, Defence Community Organisation, Defence Families Association and DVA.

48. **ADF Mental Health Action Plan 2012-2015.** Achievements included:

- a. The *High Res* website was developed in collaboration with DVA, and released in late 2016. It provides evidence-based Cognitive Behaviour Therapy tools to assist serving and ex-serving ADF members and their families manage stress and improve psychological resilience, and it complements the *High Res* Smartphone app released in March 2015. The tools are based on those used in Defence's BattleSMART resilience training program.
- b. Following on from the inaugural ADF Resilience Forum held in April 2016 to promote and facilitate the coordination of resilience initiatives across Defence, a second resilience forum was held in September 2016, focusing on the importance of evaluation of resilience programs.
- c. The Continuous Improvement Framework, a centralised and coordinated approach to the monitoring and evaluation of Defence mental health programs and services, was implemented in 2016-17. The Framework is being incorporated into the 2018-2023

Defence Mental Health and Wellbeing Strategy. The primary deliverables for 2016-17 included: establishing the governance frameworks across Defence; developing capability building training; and the development of coordinated monitoring and evaluation frameworks. The focus for 2017-18 will be to finalise monitoring and evaluation plans and implement the framework on priority programs and services such as the Suicide Prevention Program to establish baseline measurements for ongoing comparison and future evaluation.

- d. Phase One of the enhanced Mental Health Screening Continuum which is designed to offer more regular opportunities for mental health screening of ADF members, regardless of their deployment status was commenced. Phase One included the trial of the Periodic mental health screen (PMHS) in primary health care settings in September to November 2016, standardisation of the mental health screens used in the Periodic Health Examination and the Separation Health Examination, expansion of mental health screening to 'high risk' groups and roles in non-operational settings and planning for the design of a 'Wellness Portal' to allow members to anonymously monitor their own mental health.

49. **The ADF Centre for Mental Health (ADFCMH).** The ADFCMH finalised the development and management of the Mental Health Workforce Skilling Framework, conducted tele-psychiatry services for Garrison and deployed health facilities, and provided clinical supervision to mental health professionals across Garrison and Defence. In addition, ADFCMH staff conducted a Second Opinion Clinic for 29 ADF members with nine patients seen via tele-psychiatry. ADFCMH continued the implementation of the 'skills for recovery' RESET program with training conducted across six locations for 281 ADF members; and coordinated and participated in the RESTORE Clinical Trial testing the effectiveness of intensive prolonged exposure therapy for Post-Traumatic Stress Disorder.

50. **The Fifth Annual ADF Mental Health Day** was held on 10 October 2016, with activities conducted throughout the month. The theme was 'Let's Talk' which focused on skills and techniques for having a conversation about mental health and wellbeing. The key activity centred on facilitated Command and Management led discussions within work teams for which JHC provides guidance and a website with information and resources.

51. **ADF Alcohol Management Strategy 2014-17 (ADFAMS).** The evaluation of the implementation of ADFAMS began in November 2016 with the re-establishment of the ADFAMS Working Group. Expert advice has been provided by the original members of the Independent Advisory Panel on the Management of Alcohol in the ADF. The evaluation report will be completed by the end of 2017.

52. As part of the evaluation process, the Outpatient Alcohol Treatment Program (OATP) has been revised to align the program with current evidenced-based practice and ensure consistency of program delivery cross-regionally. In addition to content updates, the evaluation process and participant follow-up protocols have been standardised. The revision was led by Alcohol, Tobacco and other Drug Program Team and informed by the Regional Alcohol, Tobacco and other Drug Coordinators and Navy Alcohol and other Drug Program staff.

53. **The 2018-23 Defence Mental Health and Wellbeing Strategy.** Development of a new mental health strategy commenced in FY 2015/16 with extensive consultation with a

wide range of internal and external stakeholders. The new Strategy will be released in October 2017 and will consolidate previous and current reforms and initiatives, incorporate the latest mental health research and implement a whole of organisation approach that recognises the needs of our integrated military and civilian workforce.

### ***Suicide prevention***

54. JHC continues to deliver a comprehensive Defence Suicide Prevention Program to ADF members. Key activities include provision of risk assessment training to Defence mental health professionals, annual suicide prevention and mental health awareness training for all Defence members, *Keep Your Mates Safe* workshops for junior leaders, and suicide prevention and mental health management presentations to pre-command courses. The Applied Suicide Intervention Skills Training (ASIST) is also available to key Defence personnel in gatekeeper positions, such as chaplains and Unit Welfare Officers. The Suicide Prevention Program will be one of the first mental health programs to undergo evaluation as part of the Continuous Improvement Framework to ensure that we are continually monitoring, improving, and evaluating the effectiveness of the program.

55. A key focus this FY has been the participation in, and responding to, a number of external reviews, inquiries, and research studies on suicide in current and former serving members of the ADF.

56. **Australian Institute of Health and Welfare (AIHW) Research.** JHC has worked with the AIHW and DVA to improve the understanding of the incidence of suicide in current and former serving ADF members and investigate whether there is a difference in suicide mortality compared with the general Australian population. A preliminary report was released by AIHW in November 2016, which showed that currently serving male ADF members had a significantly lower rate of suicide than the Australian male population for the period 2001 to 2014. The subsequent report *Incidence of suicide among serving and ex-serving ADF personnel 2001-2015*, released on 30 June 2017, found that the rate of suicide was 53 per cent lower for current serving men, 49 per cent lower for men in the reserve, but 14 per cent higher for ex-serving men when compared with all Australian men of the same age. The AIHW will follow up this report with a final technical report due to be released in the next 12 months, and the study will be updated annually as new data becomes available.

57. The findings support international research and previous indications that protective factors put in place by Defence are working to reduce the risk of suicide among current serving members of the ADF. It is possible that once these protective factors are lessened after transition, some former serving members are more vulnerable.

58. ***National Mental Health Commission (NMHC) Review into Suicide and Self-harm prevention services available to current and former serving ADF members and their families.*** The NMHC Review was announced by Government in August 2016, and the report was released on 30 March 2017. JHC seconded an Army Psychology Officer to the NMHC to support the review. The Commission highly commended the broad range of mental health services provided by Defence and DVA, noted the high level of satisfaction, trust and confidence that members reported in the services and Defence health professionals, and identified priority areas for continued improvement. In particular, it found that while Joint Health Command delivered appropriate services to ADF members, there will always remain more work to be done.

59. The Government response to this review was tabled on 30 June 2017, in which Defence committed to:

- a. Improving support to specialist services and the ADF Mental Health Workforce through expansion of the role of the ADF Centre for Mental Health.
- b. Improving family support through engagement of families and family sensitive practice. Defence is committed to implementing an improved family engagement model, supported by family sensitive practice amongst health providers, to better support rehabilitation and recovery.
- c. The development of options for a Peer Support Worker Model to enhance the delivery of current services and encourage help-seeking. Peer support workers will be sought from those who are currently serving and where possible, have lived experience of mental health problems.

60. On 1 September 2016 the Senate referred 'Suicide by veterans and ex-service personnel' to the Foreign Affairs, Defence and Trade References Committee for inquiry and report by 30 March 2017. Defence made both written and verbal submissions to the Inquiry. The report had not yet been released at the end of the FY.

### ***Occupational Psychology***

61. **Mental Health & Occupational Surveillance.** The Directorate of Occupational Psychology and Health Analysis (DOPHA) is the Technical Authority for the *PULSE* unit climate survey. The *PULSE* survey provides Commanders with insights into the organisational factors that have an immediate impact upon unit members' wellbeing, work commitment, and performance. In FY 16/17, DOPHA developed, administered, analysed and reported upon 15 *PULSE* surveys for ADF units; DOPHA also assisted (via survey development and data analysis) Forces Command psychology elements to undertake a further 12 *PULSE* surveys within Army, as well as providing administrative support for another 15 Navy *PULSE* surveys. Furthermore the Directorate is undertaking an evaluation of the *PULSE* program, which includes piloting of online administration options, as well as co-administrations with other Defence surveys, such as the Snapshot, to achieve greater efficiencies and combat survey fatigue. Three independent online administration trials are currently in progress. In addition to the *PULSE* program, DOPHA provides on-demand data summaries of Return to Australia Psychological Screens (RtAPS) and Post-Operational Psychological Screens (POPS) to Senior ADF Command, in order to inform evidence-based policy and practice in the area of operational mental health surveillance.

62. **Enhanced Data Capture, Management & Reporting.** The Post Operational and Return to Australia Psychological Screen (PORT) database, which captures and manages operational mental health surveillance screening data, such as RtAPS and POPS, was extended to include surveillance screens conducted on personnel deployed on OP RESOLUTE and PULSE. Consolidation of this data supported improved efficiency in data management and reporting on mental health measures in deployed and garrison populations. Development of data capture and management systems for enhanced cognitive testing assessments was initiated in 2016, delivering improved efficiency in administration and reporting.



63. **Occupational Suitability Assessment (OSA) and ADF Entry Standards.** OSA supports wellbeing and mental health in the ADF through ensuring optimal Person-Job (P-J) and Person-Organisation (P-O) fit. Several key research outcomes were delivered in 2016-17 in support of occupational suitability assessments for individuals, both civilian *ab initio* applicants and in-Service candidates, including: development and trialling of enhanced screening measures for the Combat Controller employment group and Special Forces applicants; identification and development of a psychological selection framework for ADF Cyber Operators; evaluation of diversity initiatives in ADF Pilot selection; contemporisation of selection standards for several occupations across Army, Navy and Air Force; support to Defence force Recruiting initiatives including the evaluation of online testing.

### ***Rehabilitation***

64. The strategic objective of Defence's rehabilitation programs is to provide positive rehabilitation and recovery outcomes to ADF permanent force members in order to maximise capability.

65. **ANAO Review.** JHC informed and contributed to the Australian National Audit Office (ANAO) report on the *Administration of Rehabilitation Services under the MRCA 2004*. Following the tabling of the report and the Defence response in May 2016, JHC has addressed the audit recommendation to improve how rehabilitation is measured in Defence and is introducing a military specific measure called the "return to duty" (RTD) rate in addition to the return to work rate.

### **National ADF Family Health Program**

66. The ADF Family Health Program commenced in January 2014. The Program covers gap expenses for Medicare-recognised services when ADF family members visit a General Practice. In addition a financial year allocation can be used to access a range of specialist consultations or allied health services.

67. As at 30 June 2017:

- a. In FY 16-17 the Program reimbursed ADF families for 145,753 services including 27,731 General Practitioner services, and 118,022 Allied Health/Medical Specialist services.
- b. 47,932 ADF dependants were registered in the Program representing 20,600 ADF families.

68. Ongoing evaluation and feedback regarding the Program has continued to be positive. A progressive dependant satisfaction survey was implemented September 2016. Family satisfaction with the customer service and claims administration process is at 98%.

69. The program was expanded to include additional services, including radiology, pathology, exercise physiology and remedial massage in May 2017.

## Health Materiel Management

70. JHC manages the *JHC01 Health Materiel Sustainment Agreement* for the provision of equipment, consumables and pharmaceuticals to Garrison and the three Services in support of health service delivery and preparedness. The development and implementation of Garrison Allowance Lists has seen benefits of streamlined ordering and delivery of health materiel to units that will be further refined over the short term in conjunction with the expansion of Capability Acquisition Sustainment Group (CASG) direct vendor delivery contracts for pharmaceutical and health consumable supply

## Health Research

71. JHC has developed a close working relationship with DVA for the coordination of veteran and military research. The partnership between Defence and DVA enhances collaboration and reduces duplicated effort while capitalising on available research resources.

### *Mental Health and Rehabilitation Research*

72. The ADF is currently undertaking a number of research studies to inform and improve the delivery of mental health and rehabilitation services.

73. **Longitudinal ADF Study Evaluating Resilience (LASER-Resilience).** Defence and Phoenix Australia have continued their work on this longitudinal study which has surveyed ADF members at five time points during their time in training and their first three to four years of service. In September 2016 Phoenix Australia delivered to JHC the third Detailed Report, *Exploring Social Support in the Initial Years of Military Service*, which explored social support, mental health and leadership in the ADF. In October 2016, JHC released the second detailed report, the Alcohol and Tobacco use Report, which explored the smoking and alcohol consumption in the early years of military service. Data collection for LASER-Resilience closed in October 2016 and the final LASER-Resilience report that will detail overall findings from the study, including an examination of mental health trajectories over time and factors which contribute to psychological resilience in the ADF, will be produced in 2018.

74. **Transition and Wellbeing Research Programme.** Defence and DVA have developed this programme in collaboration with a number of research partners. It is the largest and most comprehensive programme of study undertaken in Australia to examine the impact of contemporary military service on the mental, physical and social health of serving and ex-serving personnel and their families, and builds on previous Defence research. Analysis of the data for the eight reports commenced during 2016-17. The first two technical reports, *Mental Health Prevalence* and *Pathways to Care*, were provided for review and will be released in the next 12 months.

75. **The Military Rehabilitation and Compensation Act 2004 (MRCA) Rehabilitation Long-Term Study.** The broad aim of this study is to evaluate the effectiveness of rehabilitation arrangements under the MRCA within both the ADF and DVA over the long term. The Sax Institute was contracted to produce a Study Design Framework and delivered the first draft of the framework in mid-2016 for consideration by the Departments. Phase two of the study is currently being scoped.

76. **Intensive Prolonged Exposure Therapy trial.** In collaboration with Defence, DVA and Veterans and Veterans Families Counseling Service (VVCS), Phoenix Australia is undertaking a trial of intensive prolonged exposure therapy for the treatment of Post-Traumatic Stress Disorder for current and former ADF members. In 2016-2017, there were 17 current serving member referrals to the trial from a total of 79 eligible intake referrals. Ongoing promotion of the trial continues in all trial sites.

***The ADF Professor of Military Medicine and Surgery***

77. Defence's partnership with the University of Queensland was extended for three years and Colonel Michael Reade was reappointed as the ADF Professor of Military Medicine and Surgery in early 2017. This partnership continues to promote research relevant to military trauma medicine and surgery, and ensure modern trauma care is incorporated into ADF policy and practice. In 2016-17, several major clinical trials – supported by \$10 million in competitive grant funding – were supervised by Professor Reade. These activities include a trial of cryopreserved versus conventional liquid-stored platelets for the treatment of surgical bleeding; a comparison of transfusion with the freshest available red blood cells and conventional (aged) red blood cells in critical illness; and the use of tranexamic acid for patients after severe trauma. Additional research including clinical trials of erythropoietin in trauma, cold-stored platelets in trauma, fibrinogen concentrate as an alternative to plasma transfusion, and US participation in the Australian tranexamic acid trial are currently under funding review.

78. Professor Reade supervises 10 research students including four Defence members, working on minor projects related to military trauma. A grant funding the Australian Massive Transfusion Registry as part of the Centre for Research Excellence in Blood Management supports two ADF officers working for a PhD and MPhil under Professor Reade's supervision. The upcoming establishment of the *Queensland Health Ken James Trauma Research Centre* at the Royal Brisbane and Women's Hospital is expected to offer considerable scope for Defence members to undertake research higher degrees.

79. In FY 16-17, Professor Reade published 15 papers (including one in the *New England Journal of Medicine*), three book chapters and made 43 conference presentations (Annex B). In addition he led transformation of ADF Military Anaesthetics training; and developed a comprehensive suite of Clinical Practice Guidelines for hospital-level care which were subsequently adopted by Army and Air Force. Professor Reade continues to support to the Military Specialist Program and provide ADF representation at forums including the Technical Co-operation Program Technical Panel 22 and the Australian Resuscitation Council.

***The Army Malaria Institute (AMI)***

80. AMI continued its tradition of progressing research activities based on drug evaluation, drug resistance and diagnostics, vector surveillance and control, clinical studies and surveillance, and arbovirology.

81. In FY 16-17, 20 major conference presentations, 35 scientific journal publications, eleven international health engagements and one Fulbright scholarship were made. A list of publications from AMI is at Annex C.

82. **Antimalarial Studies 200-2002.** JHC continued to invest considerable time and resources into managing concerns raised in mainstream and social media about the health effects of two antimalarials, mefloquine and tafenoquine, that were used in AMI studies during 2000-2002.

83. JHC updated and expanded the online information resource at [www.defence.gov.au/Health/HealthPortal/Malaria](http://www.defence.gov.au/Health/HealthPortal/Malaria) about these trials, malaria and the use of antimalarial medication in the ADF. JHC also supported the pilot DVA outreach program in Townsville in December 2016 by providing comprehensive briefings to local General Practitioners who may have patients that are concerned about past antimalarial use. During this reporting period, JHC received approximately 90 requests for information from current and former serving members regarding the Army Malaria Institute studies and the use of antimalarial medications by the ADF.

### *Ethical Review of Research*

84. The Australian Defence Human Research Ethics Committee (ADHREC) activity for FY 16-17 is shown in Table 6. Overall there was an increase in new protocols, the number of resubmissions and requests for extensions to the period of ethical approval, and a decreased number of requests for amendments.

**Table 6– ADHREC Activity FY 16-17**

Source	New Protocols	Resubmissions	Extension Requests	Modifications, Amendments
<b>JHC</b>	1	1	1	3
<b>DSTG</b>	5	4	8	8
<b>DPIR</b>	0	0		
<b>Defence (other)</b>	3	1	1	1
<b>External</b>	24	25	16	28
<b>TOTAL</b>	<b>33</b>	<b>31</b>	<b>18</b>	<b>40</b>

85. The JHC Low-Risk Ethics Panel reviewed 21 new protocols during FY 16-17. Seven were approved as low risk, four were approved as negligible risk, one was not approved, two were withdrawn by the researcher and four were referred to ADHREC for consideration. Three were deemed to not require review by a human research ethics committee.

86. The Defence Animal Ethics Committee (DAEC) received and approved four new protocols during FY 16-17. DAEC function was assessed as part of an independent external review, conducted every four years in compliance with the Australian animal use code.

87. As a result of recommendations made by the National Commission of Audit Phase 2 Report (March 2014), a main priority for JHC and DVA this FY was the establishment of a joint human research ethics committee by 1 July 2017. This involved development and approval of an agreed model, drafting and finalisation of a jointly issued policy and Terms of Reference, and appointment of members to the Departments of Defence and Veterans' Affairs

Human Research Ethics Committee. All requirements were in place to enable the commencement of the joint committee from 01 July 2017.

## Health Policy, Review and Advice

### *Policy*

88. The main effort during the early part of this FY was on finalising the transition of existing health policy into the new Defence Health Manual (DHM), a tiered health policy framework that was published on 09 Dec 2016. The new framework addresses the recommendation from the *Review of Health Information Practices in Defence* (Evans Review) to consolidate health policy in one location and make it more accessible to health personnel, commanders and the broader ADF community. More than 200 discrete Defence health policies were consolidated into a three volume manual as part of Phase One of the policy modernisation process.

89. Phase Two of the DHM project commenced in early 2017 and involved the review of all extant Defence health policy. This has included the progressive alignment of the DHM with the Defence Administrative Policy framework principles based policy considerations, in addition to achieving the legislative requirements for web accessibility of all DHM content. Phase Two has also focused on removing the duplication, educative material and policy conflict resident within legacy documents, in addition to simplifying the language and embedding references and forms as hyperlinks to improve the end user experience. Benefits realised in Phase Two of the DHM project include content reduction (averaging 40 to 60 percent less than legacy documents) and improved consultation and review processes, which better support technical governance and end user implementation.

### *Medical Employment Classification and Advisory Service (MECARS)*

90. MECARS continues to experience an increased workload relative to previous years. Table 7 shows the number of CMECR received and processed this year compared to last. Significant gains have been made over the past 12 months to reduce processing times to meet the expectations of the single service Career Management Agencies.

**Table 7: CMECR Cases processed FY 15/16 and FY 16/17**

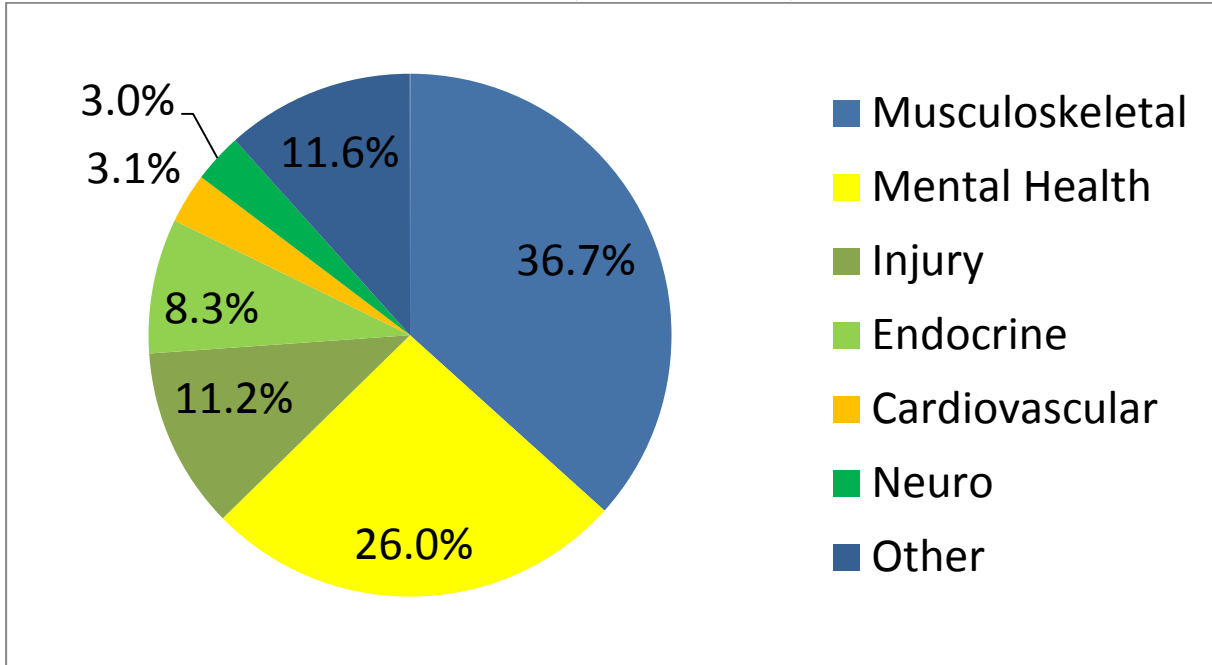
	CMECR In			CMECR Out		
	15-16	16-17	Change	15-16	16-17	Change
<b>RAN</b>	616	801	30%	688	787	14.39%
<b>Army</b>	2 134	2 371	11.10%	2 215	2 248	1.49%
<b>RAAF</b>	732	786	7.37%	643	750	16.64%
<b>Total</b>	3 482	3 958	13.67%	3 546	3 785	6.74%

91. The number of appeals against MECRB determinations has shown a decrease (215 appeals received in FY 15/16 to 84 in FY 16/17). The reason for the decrease is most likely to be the more rapid processing of cases leading to less change in the member's clinical condition at the time of determination.

92. An analysis of the types of conditions leading to CMECR action has been undertaken, looking at the period 2007 to 2016. In this period 7490 cases have been

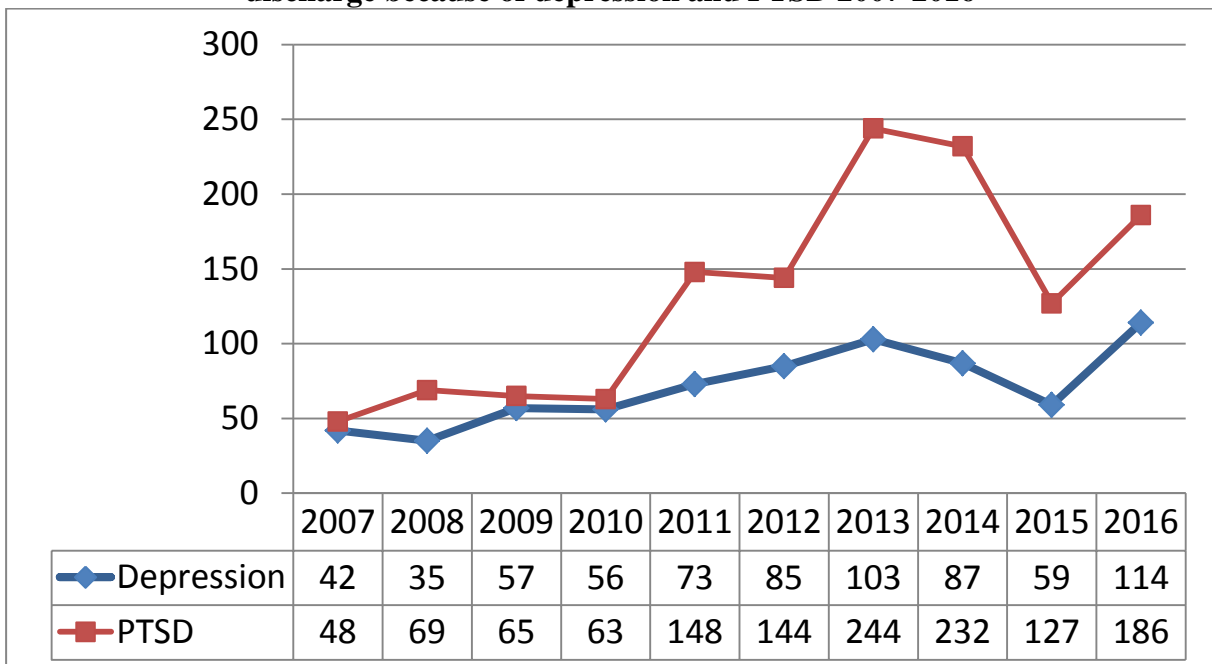
recommended for medical discharge. The main conditions associated with a recommendation that the member should be medically discharged were musculoskeletal conditions (36.7%) and mental health conditions (26.0%). Figure 3 shows the conditions that have been associated with a recommendation for medical discharge over the period 2007- 2016.

**Figure 3: Primary Condition Associated with a Recommendation for Medical Discharge, 2007-2016 (total cases 7490)**



93. Of the cases with a mental health condition the main diagnoses were post-traumatic stress disorder and depression. Figure 4 shows the number of cases per year with this diagnosis.

**Figure 4: Number of cases presented to the MECRB with a recommendation for medical discharge because of depression and PTSD 2007-2016**



94. MECARS continues to review cases for other reasons with a notable decrease in the number of cases reviewed for the single services or Commonwealth Superannuation Corporation to advice on mode of separation and conditions leading to an individual's retirement (311 in 2015/16 to 146 in 2016/17).

### *Health Advice*

95. **Public Health.** Advice and information products were provided to the Defence population regarding a range of issues in this reporting period, including Zika virus, the polio threat in some parts of the Middle East, Asia and Africa and changes to yellow fever vaccination requirements.

96. **Occupational Medicine and Environmental Health.** Subject matter expertise in this area has been provided across Defence. The main focus has been reviewing and updating health policy around monitoring and managing exposure to occupational hazards. There has also been ongoing provision of support to the Per- and Poly-fluoroalkyl Substances (PFAS) Management Program. This support has included attendance at formal engagement activities with concerned people both on ADF bases and in the general community in PFAS investigation areas. Additionally, policy was developed around the establishment and implementation of the ADF Voluntary blood testing program, which parallels the civilian program established by the Department of Health. The ADF Historical Occupational Exposure Record was developed to support ADF members in reporting exposure to any hazard and have this included in their health record. There has been ongoing input into the concept for the provision of Occupational Medicine and Occupational Hygiene services to the ADF.

97. **Single Medical Assessment Process.** In the second half of this reporting period, work commenced to establish a Single Medical Assessment Process (SMAP). This is an initiative under the Defence/DVA Transition Taskforce. JHC has led this project in collaboration with the Department of Veterans' Affairs (DVA) and the Commonwealth Superannuation Commission (CSC). Its goal is to develop a member centric process that will facilitate the resolution of compensation claims and pension entitlements prior to separation from the ADF. This will provide ADF members with greater certainty as they move into civilian life. The process will be trialled at the Holsworthy Health Centre from October 2017 for a six month period, and will be evaluated to enable refinement of the process prior to rolling out across Defence.

## **Projects and Initiatives**

### *Next Generation Health Service*

98. Joint Health Command (JHC) commenced the Next Generation Health Services (NGHS) Project (the Project) in July 2016 to define and establish the next model of health service delivery for ADF Members beginning 01 July 2019. The project will:

- a. Work with customers and stakeholders to identify opportunities for improvements to current health services and identify the lessons learned from the current model

- b. Review, and update as necessary, the Garrison Health Service delivery model against which supply arrangements can be procured
- c. Develop the next iteration of the Service Level Agreement (SLA) and Regional Level Agreements (RLA) between the Single Services and JHC
- d. Conduct a procurement process to establish a new ADF Health Services Contract for implementation from 1 July 2019
- e. Transition to the new contract.

99. JHC is seeking an evolving health care delivery model, which consolidates the current range of packages for on-base services, off-base services, Health Hotline service, pathology, imaging and radiology services and offers improvements over the life of the contract. The solution may also include a number of innovations and additional services informed by Lessons Learnt process with flexibility to add these in later years and be informed by industry better practice.

100. In FY 16/17 the project established key governance structures and conducted a comprehensive lessons learnt process. A series of stakeholder engagement workshops were conducted in all JHUs. These informed the stakeholders of key aspects of the Project and enabled important information gathering of Lessons Learnt

101. The procurement process will begin in FY 2017/18 and be complete by Dec 2018. The major review of the Service Level Agreement (SLA) will be complete by Dec 2017 but will not be finalised until December 2018.

102. The Project will continue working to provide Defence the best opportunity to develop solutions, co-designed with industry and the single Services, that will contain cost growth while maintaining or improving services.

### ***Education, Training and Workforce Initiatives***

103. JHC continues to support the Services by facilitating access to training and clinical currency opportunities through the establishment and management of over 57 *Clinical Deeds of Agreement* with Australian Healthcare providers and coordinating other training courses such as the *Level 2 Occupational and Environmental Health* and the *Military Anaesthetics Courses*. Key workforce initiatives this year have seen the ongoing expansion of the Medical Specialists Program which now includes eight specialists and twelve specialist trainees. Key workforce governance policies have been developed in support of ADF health workforce management, with an initial focus around the Health Readiness (Credentialing) Program.

104. JHC continues to work collaboratively with the HR Business Partners to manage FTE within guidance for FY 16/17. Tasks such as the APS Professionalisation Pathways, Reserve Day Management, and more broadly associated APS workforce issues including strategic projects to support workforce initiatives, have gathered momentum through 2016-17.

105. The Services have attempted to recruit full time Psychiatrists as outlined in a White Paper 16 initiative. This is not yet implemented although negotiation with potential candidates has occurred and is ongoing.



### *Coordination of Major Projects*

106. The roll out of the Interim Capability Life Cycle saw the establishment of the Health Services Program as one of the 40 key programs across the ADF. CJHLTH was appointed sponsor for JP2060 Phase 4 – *Health Knowledge Management* and is accountable to the Capability Manager (VCDF) for the project outcomes. JP2060-4 cleared Gate 0 in March 2017 where the project was directed to investigate the delivery of a Health Knowledge Management solution that addressed the requirements of non-deployed and deployed settings in a combined program of work. This program of work also included the incorporation of the Health Systems Modernisation Project ICT2250 Phase 1.

107. The Request for Tender for JP2060 Phase 3 was released in May 2017 with a submission date of Nov 2017. Ongoing work to coordinate Services input to progress the major projects, JP2060 Phases 3 and 4 remains a priority for JHC.

### *Minor Projects*

108. **Frozen Blood Project.** JHC continues to collaborate with the Australian Red Cross Blood Service to introduce deep frozen blood products into service. This year saw recognition of the products by the Therapeutic Goods Administration and the National Blood Authority. Further work to allow supply and deployment of these products has been progressed with the procurement of the necessary equipment, consumables and training. Airworthiness certification of equipment and materiel required to deploy the frozen blood product was also progressed and FY 16-17 saw certification on C130J and C-17A aircraft. The ADF Frozen blood stockpile is now required and is stored at the Australian Red Cross Blood Service Facility in Sydney. Frozen blood has reached initial operating capability in the land environment with work progressing for maritime platform

109. **HQ Realignment.** In 2016 CJHLTH initiated a review to establish the future size and composition of JHC headquarters with the stated aim of ensuring it remains a high performing organisation in support of the ADF. The realignment will also ensure the headquarters is more focused on its customers and service delivery. Design principles and realignment benefits were developed in late 2016. In April 2017 the new branch level, organisational structure of JHC headquarters was agreed by the JHC Executive. Full implementation will occur in early 2018.

110. **Digitisation.** The *2016 Defence White Paper* included a project to digitise the health records of ADF members with continuing service since the implementation of the Defence eHealth System in December 2014. The project will enable digital access to the full health record of ADF members by clinicians wherever they are being treated within the garrison health operations. The project is a significant logistics and ICT activity with records from 57 Joint Health Unit sites around Australia as well as consolidated records at the Defence Archives Centre in Victoria being digitised. A contract has been awarded to Fuji Xerox to undertake the scanning activity. The project is one of the largest digitisation projects undertaken in Australia.

**Annex A to Joint Health Command  
Annual Review 2016-17**

**ADF Mental Health Programs FY 2016-17**

The following ADF Mental Health programs, services, and activities were available to ADF members, their families, ADF mental health professionals and Commanders in FY 16/17.

Program and Services	Activities
<b>1. Promotion and Awareness: <i>Foundation Strengths, Risk Reduction, Early Intervention</i></b> Objective: To promote and raise awareness of mental health issues across the whole of the ADF, to prompt discussion of mental health issues, reduce stigma and barriers to care, and inform personnel on when and how to seek support.	
	1.1 Annual Defence Mental Health Day
	1.2 ADF Mental Health Portal “Fighting Fit”
	1.3 Regional Mental Health Promotion Officers
	1.4 Hi Res Smart Phone app and website
<b>2. Service Delivery: <i>Risk Reduction, Early Intervention, Treatment and Recovery, Transition</i></b> Objective: To provide high-quality, evidence-based early identification, treatment and rehabilitation services for ADF Personnel with mental health concerns.	
	2.1 Multi-Disciplinary Regional Mental Health Teams
	2.2 Operational Mental Health Screening
	2.3 Complex Rehabilitation Services
	2.4 Member Support Coordination
	2.5 Outpatient Alcohol Treatment Program
	2.6 Coming Home Readjustment Program
	2.7 Mate to Mate Peer Visitation
	2.8 24/7 Telephone Support Services
	2.9 SAP Living With Disability – Families Stronger Together Program
	2.10 Intensive Rehabilitation Teams
	2.11 Meaningful Engagement Options

<p><b>3. ADF Member Training: <i>Foundation Strengths, Risk Reduction, Early Intervention</i></b> Objective: To provide ADF Members with training in mental health literacy and resilience.</p>	
	3.1 Suicide Awareness Training
	3.2 ASIST Suicide Prevention Training
	3.3 Alcohol, Tobacco and Other Drugs Awareness Training
	3.4 Keep Your Mates Safe - Peer Support Training
	3.5 BattleSMART and LifeSMART Resilience Training
	3.6 RESET
<p><b>4. Professional Upskilling: <i>Risk Reduction, Early Intervention, Treatment and Recovery</i></b> Objective: To ensure the ADF Mental Health Workforce and Contracted Service Providers are appropriately skilled and equipped to support the implementation of programs across all five components of the Model.</p>	
	4.1 Mental Health Risk Assessment Training
	4.2 Clinical Training (i.e. Cognitive Processing Therapy)
	4.3 Critical Incident Mental Health Support
	4.4 Acute Mental Health on Operations
	4.5 Clinical Consultancy Services
	4.6 Mental Health Workforce Clinical Skilling Framework
<p><b>5. Research: <i>Foundation Strengths, Risk Reduction</i></b> Objective: To build a longitudinal evidence base to inform the development and delivery of ADF mental health policies and services.</p>	
	5.1 Longitudinal ADF Study Evaluating Resilience (LASER)
	5.2 Transition and Wellbeing Research Programme
	5.3 Mental Health Prevalence and Wellbeing Study (MHPWS)
	5.4 MEAO Census Study, MEAO Prospective Study (MilHOP)
	5.5 The Role of Family in ADF Member's Rehabilitation
	5.6 Managing Anger and Aggression in PTSD Trial
	5.7 Mental Health Surveillance Program
<p><b>6. Occupational Psychology: <i>Foundation Strengths, Risk Reduction</i></b> Objective: To optimise workers' satisfaction and productivity by optimising the fit between the person and their work role, and by identifying and exploiting the relationship between psychosocial workplace factors and wellbeing.</p>	
	6.1 Development, maintenance, and validation of psychometric tests and other tools used in the ADF's Occupational Suitability Assessment (OSA) function.
	6.2 Quality assurance and compliance monitoring of work

	undertaken by DFR's contracted psychology service providers.
	6.3 PULSE Unit Climate Program.
	6.4 Data capture, management, analysis and reporting in support of MHPR Branch research functions.

**ADF Professor of Military Surgery and Medicine Activities 2016-2017**

**Publications, lectures and media appearances in the reporting period**

**1. Journal articles**

1. <b>Reade MC</b> , Flint C, Kennaway S, Duff N, McCall B. Command vs. technical authority in the externally regulated, highly technical context of a Role 2E Hospital. <i>Journal of Military and Veterans' Health</i> , 2017; 25(3): 61-68.
2. <b>Reade MC</b> . Cultural influences on the rates, acceptability and utility of advance care directives. <i>Anaesthesia Critical Care &amp; Pain Medicine</i> , in press, accepted 21 JUN 17.
3. Mudge A, McRae P, Donovan P, <b>Reade MC</b> , Walker P. An interdisciplinary collaborative care model to improve care for older patients admitted to a vascular surgery ward. <i>Journal of Vascular Surgery</i> , submitted 10 JUN 17.
4. <b>Reade MC</b> . Low-dose, non-titrated dexmedetomidine trials: clarifying possible coenrollment. <i>Anesthesiology</i> , 2017; 127(2): 398.
5. Jones D, Hodgson CL, Shehabi Y, <b>Reade MC</b> . Reducing confusion about post-cardiotomy delirium. <i>Critical Care and Resuscitation</i> , 2017; 19(1), 1-4.
6. Phan K, Dux C, Osland E, <b>Reade MC</b> . Effect of hypocaloric normoprotein or trophic versus full enteral feeding on patient outcomes among critically ill adults: A systematic review. <i>Anaesthesia and Intensive Care</i> , in press, accepted 07 JUN 17.
7. Rowan K, Angus D, Bailey M, Barnato A, Bellomo R, Coats T, Delaney A, Gimbel E, Grieve R, Harrison D, Higgins A, Howe B, Huang D, Kellum J, Mounsey P, Music E, Peake S, Pike F, <b>Reade MC</b> , Sadique Z, Singer M, Yealy D. Early, Goal-Directed Therapy for Septic Shock - A Patient-Level Meta-Analysis. <i>New England Journal of Medicine</i> , 2017; DOI: 10.1056/NEJMoa1701380.
8. <b>Reade MC</b> , Bass F, Howe B, Seppelt I, Shehabi Y. Considerations for co-enrolment in randomised controlled effectiveness trials in critical care: the SPICE-8 co-enrolment guidelines. <i>Critical Care and Resuscitation</i> , 2017; 19(2): 110-114.
9. Pretorius CJ, <b>Reade MC</b> , Warnholtz C, McWhinney BC, Phua MM, Lipman J, Ungerer JP. Pyroglutamate (5-oxoproline) measured with hydrophilic interaction chromatography (HILIC) tandem mass spectrometry in acutely ill patients. <i>Chimica Acta</i> , 2017; 466: 72-77.
10. Linwood R, Duff N, Flint C, Reade MC, Krohn P. Application of clinical governance in a Role 2E hospital: the 2 <sup>nd</sup> General Health battalion experience. <i>Journal of Military and Veterans' Health</i> , 2017; 25(1): 23-29.
11. Winnearls J, Mitra B, <b>Reade MC</b> . Haemotherapy algorithm for the management of trauma induced coagulopathy – an Australian perspective. <i>Current Opinion in Anesthesiology</i> , 2017; 29: ref. 0952-7907
12. <b>Reade MC</b> . Low dose dexmedetomidine for the prophylaxis of perioperative ICU delirium – how much evidence is enough? <i>Journal of Thoracic Disease</i> , 2016; 8(11): 3020-3023.
13. Aubron C, Flint A, Bailey M, Pilcher D, Cheng A, Hegarty C, Martinelli A, <b>Reade MC</b> , Bellomo R, McQuilten Z. Is platelet transfusion associated with hospital-acquired infections in critically ill patients? <i>Critical Care</i> , 2017; 21(1): 2.
14. Flint A, Aubron C, Bailey M, Bellomo R, Pilcher D, Cheng AC, Hegarty C, <b>Reade MC</b> , McQuilten Z. Duration of platelet storage and outcomes of critically ill patients. <i>Transfusion</i> , 2017; 57: 599-605.

15. **Reade MC**, Bailey M, Bellomo R. Dexmedetomidine to reduce intubation time in patients with agitated delirium--Reply. *Journal of the American Medical Association*, 2016; 316(7): 773-774.

## 2. Book Chapters

1. Winnearls J, **Reade MC**. Evidence, new methods and current practice of point-of-care coagulation testing in major haemorrhage. *Australasian Anaesthesia 2017*, Melbourne, Australian and New Zealand College of Anaesthetists, submitted 23 JUN 17.
2. **Reade MC** & Thomas PD. Blast and ballistic trauma. In: Bersten A, Soni N. *Oh's Intensive Care Manual*, 8<sup>th</sup> edition, London, Elsevier, 2017, in press, accepted 01 JAN 17.
3. Mahoney A, **Reade MC**. Making the best use of simulation training in critical care medicine. In: Vincent JL, ed. *Annual Update in Intensive Care and Emergency Medicine 2017*. Berlin: Springer-Verlag, in press, accepted 19 SEP 16.

## 3. Journal abstracts

1. **Reade MC**. What will we be transfusing trauma patients in the next war?" *ANZ Journal of Surgery*, 87(S1), 83, 2017.
2. **Reade MC**. Is the trauma 'golden hour' really fool's gold? *Journal of Military and Veterans Health*, 2017, in press, accepted 4 AUG 17.
3. Aubron C, Martinelli T, **Reade MC**, Bellomo R, Cheng A, Pilcher D, Flint A, McQuilten Z, Bailey M. Is platelet transfusion beneficial in every critically ill patient? *Vox Sanguis*, accepted 11 MAR 17.
4. Phua MM, Pretorius C, McWhinney B, Ungerer J, Lipman J, **Reade MC**. Confirming hypothesised associations of increased pyroglutamic acid in a mixed sample of critically ill patients: an observational cohort study. *Anaesthesia and Intensive Care*, 45(3), 406, 2016.
5. Shehabi Y, Bellomo R, Bailey M, Kadiman S, Ti LK, **Reade MC**, Howe B, Green M, McArthur C, Seppelt IM, Webb S, Alias AB, Mukherjee A, Khoo M. Early pain, agitation, depth of sedation and mobilization as predictors of 180-day mortality: A multinational prospective longitudinal cohort study (The SPICE-PAD Study). *Intensive Care Medicine*, in press, accepted 8 AUG 16.
6. **Reade MC**. A bibliometric analysis of military trauma registry publications. *Journal of Military and Veterans Health*, 24(4), 9, 2016.
7. **Reade MC**. New ANZCOR guidelines for traumatic cardiac arrest: building on military experience. *Journal of Military and Veterans Health*, 24(4), 39-40, 2016.
8. Hann A, Presneill J, Wall D, **Reade MC**. Utility of digital rectal examination following trauma: a retrospective study. *ANZ Journal of Surgery*, 2016, 86(Suppl. 1), 165.
9. Van Zyl N, Milford EM, Diab S, Dunster K, McGiffen P, Rayner SG, **Reade MC**, Fraser JF, Staib A. Activation of the protein C pathway and endothelial glycocalyx shedding is associated with coagulopathy in an ovine model of trauma and haemorrhage. *ANZ Journal of Surgery*,

## 4. Unpublished conference lectures

1. Sultana AJ, Dean MM, **Reade MC**, Flower RL, Tung, JP. In vitro characterisation of anti-major histocompatibility complex class I mediated transfusion-related acute lung injury (TRALI). *Australasian Society for Immunology Annual Scientific Meeting*, Brisbane, 2017.

2. <b>Reade MC.</b> Cryopreserved vs. liquid platelets for surgical bleeding: proposal for a definitive trial. <i>ANZICS Clinical Trials Group Winter Research Forum, Queenstown New Zealand, 2017.</i>
3. <b>Reade MC.</b> Data sharing – Early Goal Directed Therapy Individual Patient Data Meta-analysis Lessons Learnt. <i>ANZICS Clinical Trials Group Winter Research Forum, Queenstown New Zealand, 2017.</i>
4. <b>Reade MC.</b> Dexmedetomidine to lessen ICU agitation. <i>8<sup>th</sup> International Congress of the German Sepsis Society, Weimar, 2017.</i>
5. <b>Reade MC.</b> What does a credible Army clinical workforce look like? <i>Army Health Services Conference, Brisbane, 2017.</i>
6. <b>Reade MC.</b> Traumatic Cardiac Arrest. <i>Australian and New Zealand College of Paramedicine Annual Meeting, Brisbane, 2017.</i>
7. Simonova G, Pedersen S, <b>Reade MC</b> , Johnson L, Dean M, Tung JP. Cryopreserved sheep platelet concentrates: hemostatically efficient and suitable for transfusion research. <i>United States Military Health Service Research Symposium, Orlando, 2017.</i>
8. <b>Reade MC.</b> Current best practice and likely future innovations in blood products for trauma care. <i>Injury 2017, Auckland, 2017.</i>
9. <b>Reade MC.</b> Clinical trials methodology: building on 20 years' experience in the ANZICS Clinical Trials Group. <i>National Taiwan University Hospital Invited Professorial Address, Taipei, 2017.</i>
10. <b>Reade MC.</b> ICU delirium: current and future research. <i>Taiwan Society of Critical Care Medicine Clinical Update, Taipei, 2017.</i>
11. <b>Reade MC.</b> Current management and future research for ICU delirium. <i>Taiwan Society of Emergency and Critical Care Medicine CME lecture, Tainan, 2017.</i>
12. <b>Reade MC.</b> Surgical services at the ANZAC Role 2E hospital, Taji, Iraq. <i>Royal Australasian College of Surgeons Annual Scientific Conference, Adelaide, 2017.</i>
13. <b>Reade MC.</b> Traumatic cardiac arrest. <i>Australian Resuscitation Council Spark of Life Conference, Adelaide, 2017.</i>
14. <b>Reade MC.</b> Cardiac arrest due to trauma: new Australian and New Zealand guidelines. <i>Australasian Trauma Society Annual Scientific Meeting, Melbourne, 2017.</i>
15. <b>Reade MC.</b> The new Australian Defence Force Blood Transfusion policy. <i>Australasian Association of Clinical Biochemists / Australian Institute of Medical Scientists Combined Scientific Meeting, Brisbane, 2016.</i>
16. <b>Reade MC.</b> Big data: examples of military registry data answering hypothesis-driven research questions. <i>Australian and New Zealand College of Anaesthetists Annual Scientific Meeting, Brisbane, 2017</i>
17. <b>Reade MC</b> , Scott D, Scarff C, Mahoney A, Luckin P, Thomas P, Douglas A. Military anaesthesia. <i>Australian and New Zealand College of Anaesthetists Annual Scientific Meeting, Brisbane, 2017.</i>
18. <b>Reade MC.</b> Blood products for austere environments – the new ADF policy. <i>Ortho Clinical Diagnostics Lab Leader Scientific Summit, Singapore, 2017.</i>
19. <b>Reade MC.</b> Dexmedetomidine in agitated delirium: the DahLIA trial results. <i>ANZICS Annual Scientific Meeting, Perth, 2016.</i>
20. <b>Reade MC.</b> Is there still any reason to use colloids in trauma or critical illness? <i>ANZICS Annual Scientific Meeting, Perth, 2016.</i>
21. Holley A, <b>Reade MC</b> , Robertson A, New C, Lumsden J, Sharpe S, Weber D, Rogerson T, Mackie B, Herron R. Military critical care. <i>ANZICS Annual Scientific Meeting, Perth, 2016.</i>
22. Hann A, Presneill J, <b>Reade MC.</b> Hollow viscus injury following blunt abdominal trauma: A case series. <i>General Surgeons Australia Annual Scientific Meeting, Melbourne, 2016. (Awarded John Han medal for the best research paper presented by a trainee).</i>
23. <b>Reade MC.</b> Recent clinical trials of dexmedetomidine. <i>Asia-Pacific Sedation Conference, Seoul, 2016.</i>
24. <b>Reade MC.</b> Blast injury in civilian practice. <i>5<sup>th</sup> Annual Best of Brussels Meeting, Indian Society of Intensive Care Medicine. Pune, 2016.</i>
25. <b>Reade MC.</b> Are non-arterial blood gases any use? <i>5<sup>th</sup> Annual Best of Brussels Meeting, Indian Society of Intensive Care Medicine. Pune, 2016.</i>

26. <b>Reade MC.</b> Why I would, and why I would not, use whole blood transfusions in civilian practice. <i>5<sup>th</sup> Annual Best of Brussels Meeting, Indian Society of Intensive Care Medicine.</i> Pune, 2016.
27. <b>Reade MC.</b> How I manage agitated delirium in the ICU after the DahLIA trial. <i>5<sup>th</sup> Annual Best of Brussels Meeting, Indian Society of Intensive Care Medicine.</i> Pune, 2016.
28. <b>Reade MC.</b> Penetrating thoraco-abdominal trauma in an austere Role 2 hospital. <i>Remote Damage Control Resuscitation conference,</i> Bergen, 2016.
29. Reade MC. What is delirium and what are the diagnostic tools? <i>Austin Health Delirium Symposium,</i> Melbourne, 2017.
30. Reade MC. Challenges of diagnosing delirium in the ICU. <i>Austin Health Delirium Symposium,</i> Melbourne, 2017.
31. Reade MC. Treatment of delirium in ventilated patients. <i>Austin Health Delirium Symposium,</i> Melbourne, 2017.
32. Reade MC. Tranexamic acid – too early or too late? <i>1st Annual Perioperative Patient Blood Management Symposium,</i> Brisbane, 2017.
33. Reade MC. Blood products in the Australian Defence Force. <i>Ortho Clinical Diagnostics Breakout Seminar, Australian and New Zealand Society of Blood Transfusion Annual Scientific Meeting,</i> Melbourne, 2016.
34. Reade MC. Point of Injury care of victims of explosive blast. <i>Australian Defence Force Special Operations Command CBRNE Seminar,</i> Sydney, 2016.

## 5. Other

1. MacNeil F, Hood N, Bendall J, <b>Reade MC.</b> ANZCOR Guideline 9.1.1 – First Aid for Management of Bleeding. In: Resuscitation Guidelines. Melbourne: Australian Resuscitation Council, 2017.
2. <b>Reade MC.</b> Commentary on “Effect of dexmedetomidine on mortality and ventilator-free days in patients requiring mechanical ventilation with sepsis: A randomized clinical trial”, Kawazoe et al., JAMA 2017. <i>Intensive Care Monitor</i> , published <a href="https://www.intensive-care-monitor.hk">https://www.intensive-care-monitor.hk</a> 19 APR 17.
3. <b>Reade MC.</b> Commentary on “Dexmedetomidine for prevention of delirium in elderly patients after non-cardiac surgery: a randomised, double-blind, placebo-controlled trial”, Su et al., Lancet 2016. <i>Intensive Care Monitor</i> , 23(6), 106-107.
4. <b>Reade MC,</b> Scott DM. Following protocols vs. tailoring care based only on experience – why neither is best. <i>Australian Anaesthetist,</i> September 2016, 46-47.
5. <b>Reade MC.</b> Commentary on “Effect of dexmedetomidine on mortality and ventilator-free days in patients requiring mechanical ventilation with sepsis: A randomized clinical trial”, Kawazoe et al., JAMA 2017. <i>Intensive Care Monitor</i> , published <a href="https://www.intensive-care-monitor.hk">https://www.intensive-care-monitor.hk</a> 19 APR 17.



**Annex C to Joint Health Command  
Annual Review 2016-17**

**AMI Journal Publications**

**The following AMI Scientific Journal Publications were published in FY 16/17.**

<b>AMI SCIENTIFIC JOURNAL PUBLICATIONS</b>			
<b>Publication Title</b>	<b>Authors (Current AMI Authors in bold)</b>	<b>Journal of Publication</b>	<b>Date of Publication</b>
In vivo efficacy and tolerability of artesunate-azithromycin for the treatment of falciparum malaria in Vietnam.	Phong NC, Quang HH, Thanh NX, Trung TN, Dai B, <b>Shanks GD, Chavchich M, Edstein MD.</b>	Am J Trop Med Hyg 2016; 95:164-167	Jul 2016
Enhanced risk of illness during the 1918 influenza pandemic after previous influenza-like illnesses in three military populations	<b>Shanks GD</b> , Burroughs S, Sohn JD, Waters N, Smith VF, Waller M, Brundage JF.	Infect Epidemio 2016; 144: 2043-2048	Jul 2016
Vaccine associated enhanced respiratory disease is influenced by hemagglutinin and neuraminidase in whole inactivated influenza virus vaccines.	Rajão DS, Chen H, Perez DR, Sandbulte MR, Gauger PC, Loving CL, <b>Shanks GD</b> , Vincent AL.	J Gen Virol 2016; 97:1489-1499	Jul 2016
Variable mortality from the 1918-9 influenza pandemic during military training.	<b>Shanks GD</b> , Burroughs S, Sohn JD, Waters N, Smith VF, Waller M, Brundage JF.	Military Med 2016; 181:878-882	Aug 2016
Malaria outbreak on an Australian naval ship in the Indian Ocean.	Rose GC, Westphalen N, <b>Shanks GD.</b>	J Mil Vet Hlth 2016; 24: 56-59	Aug 2016

Historical review: lethality of first contact dysentery epidemics on Pacific islands	<b>Shanks GD.</b>	Am J Trop Med Hyg 2016; 95:273-277	Aug 2016
Historical review: problematic malaria chemoprophylaxis with quinine.	<b>Shanks GD.</b>	Am J Trop Med Hyg. 2016; 95:269-272	Aug 2016
The Spiroindolone KAE609 Does Not Induce Dormant Ring Stages in <i>Plasmodium falciparum</i> Parasites.	<b>Chavchich M, Van Breda K, Rowcliffe K, Diagana TT, Edstein MD.</b>	Antimicrob Agents Chemother. 2016. Aug 22: 60(9): 5167-74	Aug 2016
Persistence and immunogenicity of chemically attenuated blood stage <i>Plasmodium falciparum</i> in Aotus monkeys	De SL, Stanisic DI, <b>van Breda K</b> , Bellete B, <b>Harris I, McCallum F, Edstein MD, Good MF.</b>	Int J Parasitol. 2016 Aug;46(9): 581-91	Aug 2016
Rapid mortality transition of Pacific Islands in 19th Century.	Penman B, Gupta S, <b>Shanks GD.</b>	Infect Epidemio 2016; Sep 9:1-11.	Sep 2016
USA Military Exemption in International Treaty Law – Should Australia Follow Suit	<b>Rourke, M.F.</b>	Australian Army Journal Spring, Volume XIII, No.2	Sep 2016
Protection of military personnel against vector-borne diseases: a review of the collaborative work of the Australian and US military over the last 30 years.	<b>Frances SP, Edstein MD, Debboun M, Shanks GD.</b>	AMEDD Journal 2016; Oct-Dec;(3-16):14-21	Oct 2016
Open Access DNA, RNA and Amino Acid Sequences: The Consequences and Solutions for the International Regulation of Access and Benefit Sharing	Lawson C and <b>Rourke MF</b>	Journal of Law and Medicine 2016 Oct 7 V24 Pt 1	Oct 2016
The Utility of Malaria Rapid Diagnostic Tests as a Tool in Enhanced Surveillance for Malaria Elimination in Vanuatu	Donald W, Pasay C, Guintran JO, Iata H, Anderson K, Nausien J, <b>Gresty KJ, Waters NC, Vestergaard LS, Taleo G, Cheng Q</b>	PLoS One 11:e0167136	Nov 2016
Historical Review: Does falciparum malaria destroy isolated tribal populations?	<b>Shanks GD.</b>	Travel Med Infect Dis 2016; Aug 20.	Nov 2016
Historical review: Pacific island societies destabilized	<b>Shanks GD.</b>	J Mil Vet Hlth 2016:	Nov 2016

by infectious diseases.		24:71-74	
Malaria death in an isolated island garrison on New Guinea 1915.	<b>Shanks GD.</b>	Tropical Medicine and Infectious Diseases. 2016;1; 2 doi:10.3390/tropicalmed1010002	Dec 2016
Differing rates of antibody acquisition to merozoite antigens in malaria: implications for immunity and surveillance.	<b>McCallum FJ</b> , Persson KE, Fowkes FJ, Reiling L, Mugenyi CK, Richards JS, Simpson JA, Williams TN, Gilson PR, Hodder AN, Sanders PR, Anders RF, Narum DL, Chitnis C, Crabb BS, Marsh K, Beeson JG.	J Leukoc Biol. 2016 Nov 11. pii:jib. 5MA0716-294R	Nov 2016
Malaria chemoprophylaxis conundrum.	<b>Shanks GD.</b>	J Travel Med: 2016 23:	Dec 2016
Highly divergent dengue virus type 2 in south east asia	<b>Liu W, Pickering P</b> , Duchêne S, Holmes EC, <b>Aaskov JG.</b>	Emerging Infectious Diseases 2016. Dec; 22(12) 2146-2148	Dec 2016
Implications of <b>Plasmodium vivax</b> biology for control, elimination and research.	Olliaro P, Barnwell J, Barry A, Mendis K, Mueller I, Reeder J, <b>Shanks GD</b> , Snounou G, Wongsrichanalai C.	Am J Trop Med Hyg 2016; 95(6 Suppl):4-14.	Dec 2016
Population Pharmacokinetic Properties of Piperaquine in Falciparum Malaria: An Individual Participant Data Meta-Analysis.	Hoglund RM, Workman L, <b>Edstein MD</b> , Thanh NX, Quang NN, Zongo I, Ouedraogo JB, Borrmann S, Mwai L, Nsanzabana C, Price RN, Dahal P, Sambol NC, Parikh S, Nosten F, Ashley EA, Phyo AP, Lwin KM, McGready R, Day NP, Guerin PJ, White NJ, Barnes KI, Tarning J	PLoS Med. 14(1):e1002212	10 Jan 17
VivaxGEN: An open access platform for comparative analysis of short tandem repeat genotyping data in Plasmodium vivax populations.	Trimarsanto H, Benavente ED, Noviyanti R, Utami RA, Trianty L, Pava Z, Getachew S, Kim JY, Goo YK,	PLoS Negl Trop Dis; 11(3):e0005465	2017 Mar 31

	Wangchuck S, Liu Y, Gao Q, <b>Dowd S, Cheng Q</b> , Clark TG, Price RN, Auburn S.		
Implications of Parasites Lacking <i>Plasmodium falciparum</i> Histidine-Rich Protein 2 on Malaria Morbidity and Control When Rapid Diagnostic Tests Are Used for Diagnosis.	Gatton ML, Dunn J, Chaudhry A, Ciketic S, Cunningham J, <b>Cheng Q</b> .	J Infect Dis;215(7):1156-1166.	2017 Apr 1
Defining the next generation of <i>Plasmodium vivax</i> diagnostic tests for control and elimination: Target product profiles.	Ding XC, Ade MP, Baird JK, <b>Cheng Q</b> , Cunningham J, Dhorda M, Drakeley C, Felger I, Gamboa D, Harbers M, Herrera S, Lucchi N, Mayor A, Mueller I, Sattabongkot J, Ratsimbason A, Richards J, Tanner M, González IJ.	PLoS Negl Trop Dis;11(4):e0005516	2017 Apr 3
Challenges for achieving safe and effective radical cure of <i>Plasmodium vivax</i> : a round table discussion of the APMEN Vivax Working Group.	Thriemer K, Ley B, Bobogare A, Dysoley L, Alam MS, Pasaribu AP, Sattabongkot J, Jambert E, Domingo GJ, Commons R, Auburn S, Marfurt J, Devine A, Aktaruzzaman MM, Sohel N, Namgay R, Drukpa T, Sharma SN, Sarawati E, Samad I, Theodora M, Nambanya S, Ounekham S, Mudin RN, Da Thakur G, Makita LS, Deray R, Lee SE, Boaz L, Danansuriya MN, Mudiyansele SD, Chinanonwait N, Kitchakarn S, Nausien J, Naket E, Duc TN, Do Manh H, Hong YS, <b>Cheng Q</b> , Richards JS, Kusriastuti R, Satyagraha A, Noviyanti R, Ding XC, Khan WA, Swe Phru C, Guoding Z, Qi G, Kaneko A, Miotto O, Nguitragool W, Roobsoong W, Battle K, Howes RE, Roca-Feltrer A,	Malar J;16(1):141.	2017 Apr 5

	Duparc S, Bhowmick IP, Kenangalem E, Bibit JA, Barry A, Sintasath D, Abeyasinghe R, Sibley CH, McCarthy J, von Seidlein L, Baird JK, Price RN.		
The Plasmodium PI(4)K inhibitor KDU691 selectively inhibits dihydroartemisinin-pretreated <i>Plasmodium falciparum</i> ring-stage parasites.	Dembele L, Ang X, <b>Chavchich M</b> , Bonamy GMC, Selva JJ, Lim MY, Bodenreider C, Yeung BKS, Nosten F, Russell BM, <b>Edstein MD</b> , Straimer J, Fidock DA, Diagana TT, Bifani P.	Sci Rep. 7(1):2325	24 May 17
A new clade of insect-specific flaviviruses from Australian Anopheles mosquitoes displays unprecedented species-specific host-restriction	Agathe Colmant, Jody Hobson-Peters, Helle Bielefeldt-Ohmann, Andrew van den Hurk, Sonja Hall-Mendelin, <b>Weng Chow</b> , Cheryl Johansen, Jelke Fros, Peter Simmonds, Daniel Watterson, Chris Cazier, Kayvan Etebari, Sassan Asgari, Benjamin Schulz, Nigel Beebe, Laura Vet, Thisun Piyasena, Hong Nguyen, Ross Barnard, and Roy Hall	mSphere	13 Jun 2017
Tiger on the prowl: Invasion history and spatio-temporal genetic structure of the Asian tiger mosquito <i>Aedes albopictus</i> (Skuse 1894) in the Indo-Pacific	Andrew J. Maynard , Luke Ambrose, <b>Robert D. Cooper</b> , <b>Weng K. Chow</b> , Joseph B. Davis, Mutizwa O. Muzari, Andrew F. van den Hurk, Sonja Hall-Mendelin, Jeomhee M. Hasty, Thomas R. Burkot, Michael J. Bangs,	PLOS Neglected Tropical Diseases	11 Apr 2017

	Lisa J. Reimer, Charles Butafa, Neil F. Lobo, Din Syafruddin, Yan Naung Maung Maung, Rohani Ahmad, Nigel W. Beebe		
<i>Plasmodium falciparum</i> and <i>Plasmodium vivax</i> Demonstrate Contrasting Chloroquine Resistance Reversal Phenotypes.	Wirjanata G, Handayuni I, Prayoga P, Leonardo L, Apriyanti D, Trianty L, Wandosa R, Gobay B, Kenangalem E, Poespoprodjo JR, Noviyanti R, Kyle DE, <b>Cheng Q</b> , Price RN, Marfurt J.	Antimicrob Agents Chemother;61(8).	2017 Jul 25
Synthesis and evaluation of symmetric acyclic nucleoside bisphosphonates as inhibitors of the <i>Plasmodium falciparum</i> , <i>Plasmodium vivax</i> and human 6-oxopurine phosphoribosyltransferases and the antimalarial activity of their prodrugs.	Špaček P, Keough DT, <b>Chavchich M</b> , Dračínský M, Janeba Z, Naesens L, <b>Edstein MD</b> , Guddat LW, Hocková D.	Bioorg Med Chem. 25(15):4008-4030	01 Aug 17
Synthesis and Evaluation of Asymmetric Acyclic Nucleoside Bisphosphonates as Inhibitors of <i>Plasmodium falciparum</i> and Human Hypoxanthine- Guanine-(Xanthine) Phosphoribosyltransferase.	Špaček P, Keough DT, <b>Chavchich M</b> , Dračínský M, Janeba Z, Naesens L, <b>Edstein MD</b> , Guddat LW, Hocková D.	J Med Chem. 60(17):7539- 7554	14 Sep 17
Historical review: problematic malaria chemoprophylaxis with quinine.	<b>Shanks GD</b>	Am J Trop Med Hyg. 2016; 95:269-272	2016
Variable mortality during 1918 influenza pandemic in Chicago.	<b>Shanks GD</b> , Brundage JF	Proc Natl Acad Sci U S A. 2017 Apr 6. pii: 201701344	2017
Malaria mortality in the Australian Defence Force during the 20 <sup>th</sup> century.	<b>Shanks GD</b>	Am J Trop Med Hyg 2017; 97(2):544-547	2017

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