Aligning Defence Environmental and Occupational Health (EOH) Capability with Future Requirements: The 4th Australian Defence Force EOH Conference

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Introduction

Eleven years ago, the Australian Defence Force (ADF) held the third Environmental and Occupational Health (EOH) Conference. Much has changed within the Pacific region and the world since that time. In recent years, ADF EOH personnel have supported numerous missions across the spectrum of operations. These missions included humanitarian assistance such as Exercise Pacific Partnership, disaster relief during Operation Philippines Assist, conflict support in Afghanistan and Iraq; and post conflict support in Timor-Leste and the Solomon Islands. Individuals who deployed in support of each of these missions, and more, gathered at Gallipoli Barracks outside of Brisbane from March 4-6, 2015 to share their first hand experiences to inform policy development and build meaningful partnerships during the 4th ADF EOH Conference.

Presenters and participants represented the various ADF Services, interagency partners such as the Department of Foreign Affairs and Trade and the Department of Veterans Affairs, academia, as well as our international partners from the New Zealand, United Kingdom and the United States Defence Forces. The conference opened with a brief presentation of what the future might hold for the EOH profession within the Pacific Region and an overview of strategic efforts underway by the ADF Joint Health Command (JHC), the conference co-sponsor along with the Australian Army 1st Preventive Medicine Company. Six sessions followed over three days ranging in topics from EOH on exercise and deployment to health surveillance informing health intelligence. The remaining sections of this commentary will outline the anticipated future challenges for the EOH profession, strategic initiatives underway within JHC to support EOH, key highlights from each of the conference sessions, and concluding thoughts for the Defence EOH community to ponder.

Future EOH Challenges

Countries within the Asia-Pacific region have and continue to remain vulnerable to climate threats such as cyclones and tsunamis, environmental degradation, political instability, and terrorist threats. They also suffer from poverty, population displacement, infectious diseases, decreasing access to potable water sources and inadequate sanitation, which all lead to higher rates of morbidity and mortality.[1] Many countries within the region are also experiencing high rates of population growth, increased life expectancy, new technologies which have improved survivability of historically fatal illnesses and disease, as well as overall increases in per capita income. While these issues could be interpreted as successes and opportunities, they place additional pressures on many fragile health systems within the Pacific region.[2]

Furthermore, higher total fertility rates place increased demand on maternal, newborn, and child health services in the near term while generating secondary long term effects such as increased health-care needs for a larger and older population.[3] Vector borne diseases continue to generate significant costs to both health and national economies as seen in the Solomon Islands, which has one of the highest global incidence rates of malaria outside of Africa.[4] Non-communicable diseases such as cardiovascular disease, cancer, and diabetes are creating a double burden of chronic and infectious diseases for developing countries in our region. Men in Fiji, Solomon Islands, Vanuatu, Samoa, and Tonga die prematurely (less than age 60) from non-communicable diseases at rates higher than the average of all low-income countries globally.[3] Fiji in particular has a rate more than double the global average, with the third highest prevalence rate of diabetes in the world.[5] Placing these macro issues into a micro level financial context, a single

patient requiring insulin in Vanuatu consumes the equivalent drug allocation of 76.4 citizens.[3] These figures are clearly not sustainable for these countries and our region.

So how do these current and anticipated regional health challenges relate to the EOH profession? In many countries within the Pacific region, the military plays a key role in both disaster response as well as providing direct patient care to both military and civilian populations. These broader issues will clearly put strains on a limited host nation, and specifically military disaster response and public health capacity, generating an increased reliance, and in some cases dependency, upon international development and military partners like us. So therein lies an opportunity for the EOH community to not only sustain ongoing Force Health Protection efforts to ensure the viability of military personnel deployed in the region, but potentially build partner nation EOH military capacity to address these issues now instead of allowing this dependency to endure.

The United States Department of Defense has leveraged health, to include environmental and public health, to build partnerships with military and civilian organisations throughout the world. Their health engagement activities include deploying US Navy hospital ships with partner nation EOH military personnel from the ADF, New Zealand Defence Force (NZDF), and United Kingdom Ministry of Defence to provide humanitarian assistance and public health training in the Pacific region. They also have forward-deployed research laboratories in Thailand and Myanmar that work with both the military and civilian sector to support ongoing research leading to advances in force health protection measures against infectious diseases, neglected tropical diseases and HIV/AIDS. These laboratories collaborate with organisations such as the ADF Army Malaria Institute and support the World Health Organization Global Outbreak Alert and Response Network collaboration that provides a global good to both military and civilian organisations within our region.

It is important to consider how these formalised military-to-military partnerships between developed nations can support the ongoing challenges discussed previously within the Pacific region. For example, when the ADF offers EOH support during disaster responses and humanitarian assistance missions, how does it align with existing programs managed by the host nation Ministry of Health to lessen the disease burden? What ways can the ADF partner in EOH with nations in the region prone to the aforementioned challenges and how can it serve as a pillar in supporting health, security and economic prosperity in the Pacific Region? Solutions to these broad questions will take time to develop.

ADF JHC Initiatives

At the strategic level within the ADF, JHC continues to work with the Groups and Services and NZDF partners through the Defence *Preventive Medicine* Working Group to further develop Health Manual Volume 20 - Preventive Medicine and Health Manual Volume 21 - *Pest Control.* The manuals provide direction to Preventive Medicine and Environmental Health personnel involved with the general principles of preventive medicine in support of the requirements outlined in the Australian Defence Force Publication 1.2.2. - *Force Health Protection.* Both health manuals cover subjects of environmental health, occupational hygiene and control of disease vectors and other pests in order to prevent casualties and protect the ADF members' health. These programs are managed by EOH personnel in the ADF and have an operational focus born out of the requirement to prepare for war and adapt for peace. The DPMWG was chartered in 2011 to facilitate the subject matter expert review and publication of these manuals. It is acknowledged the ongoing review process has been lengthy. JHC recognises these manuals provide much needed guidance to the Services, but that they are not published in full. The JHC EOH Staff continue to work a modified approval process to expedite the publication of the remaining parts in each of these manuals. The ADF Service Director Generals for Health agreed with the proposed process and are seeking formal approval with the Surgeon General ADF.

Additionally, JHC has been engaged with the Groups and Services in addressing the ongoing Occupational Medicine and Occupational Hygiene (OMOH) capability shortfall within the ADF. Personnel from both the EOH and the Work Health and Safety communities have supported initiatives and studies on this topic since the F111 Board of Inquiry was published in 2001. Unfortunately, ongoing OMOH personnel shortfalls continue to prevent the ADF from achieving an effective OMOH practitioner capability and proactive level of maturity. This vulnerability and liability was exposed during the investigation undertaken by Comcare in 2009 which resulted in the Hazardous Chemical Enforceable Undertaking in 2010. Bearing this in mind, as well as other recent initiatives that failed to deliver a solution to the capability shortfall, JHC is developing a Defence Work Health and Safety Committee (DWHSC) concept paper outlining options to support ADF OMOH requirements.

The goal is to submit the concept paper to the DWHSC co-chaired by the Vice Chief of Defence Force and the Deputy Secretary Defence People Group. With their endorsement, an ADF OMOH Working

Group would initiate planning efforts to deliver a mature capability level for uniformed personnel. Joint Health Command acknowledges big changes take time and remains committed to assisting ADF EOH professionals in achieving their mission while supporting Commanders in meeting their due diligence obligations under the Work Health and Safety Act. These combined initiatives will support some of the requirements identified during the ADF EOH Conference.

Session Highlights

Over the three-day ADF EOH Conference, 35 presentations were conducted with the presenters participating in four panel discussions. Below are the key points raised during these discussions. These points are the views of those present and not officially endorsed by JHC.

Table 1. Panel Discussion 1: Strategic perspectives from senior officials & Policy perspectives on how Service EOH is supporting Defence requirements

Panel Focus	Fundamental Input to Capability	Key Points
Opportunities for inter-service and international EOH collaboration	Doctrine	There is a need to clearly define the role and competencies of EOH Officers and Technicians in policy and doctrine, the current scope is too broad and may result in professionals assuming missions and tasks beyond the original objectives of the trade
		There is an assumption that the EOH profession can operate in the civilian-military space without supporting policy and doctrine to ensure effectiveness and legalities are addressed
	Organisation	Work Health Safety Branch is a shared service for the ADF, uniformed ADF EOH and Preventive Medicine personnel should serve in a similar capacity
		Different safety management systems employed by the Services could be generating hazards for the ADF, there is a need to standardise the process across Defence
	Training	A common set of Defence EOH standards should be developed among partner nations, possibly leveraging the Chemical Biological and Radiological Memorandum of Understanding between the Australia, Canada, United Kingdom, United States and New Zealand (AUSCANUKUS+NZ)
		The ADF and NZDF should explore adopting the US Department of Defense Tri-Service Tech Guide 230 on exposure guidelines for deployed personnel via the AUSCANUKUS+NZ group
		ADF EOH training standards need to be examined to determine any associated liabilities when training partner nation civilian and military personnel
		There is a need to standardise EOH training within ADF, currently there are 46 different courses ranging from 2 days to 16 weeks. Should there be a role for Health Training Advisory Group and Air Force Health Operational Conversion Unit in this process?

(Endnotes)

1 U.S. Army Public Health Command. Technical Guide 230 Environmental Health risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel. Aberdeen Proving Ground, Maryland 2013. Available at http://phc.amedd.army.mil/PHC%20Resource%20Library/TG230.pdf, accessed 12 March 2015.

Table 2. Panel Discussion 2: EOH on exercise and deployment

Panel Focus	Fundamental Input to Capability	Key Points
Institutionalising evolving roles	Doctrine	Heath threat assessments are ad hoc in how, where, when, and by whom they are conducted; it is currently a missed opportunity to inform health intelligence that should be clarified in policy and guidance (e.g. ADF Health Manual Volume 20)
		Exposure standards require consistent approach for both deployed and garrison settings
	Equipment	Significant lag time from when modern technology is identified to fill a capability shortfall and when it is fielded within the ADF, consideration should be given to a civilian contract/leasing to meet immediate needs
		The current ADF and NZDF deployment EOH kit is adequate but is not aligned to support reach back analysis. Consideration should be given to modelling U.S. Army Public Health fielded kits and leveraging laboratory analysis capability on a fee-for-service basis (e.g. Public Health Command-Pacific confirmatory EOH analysis where capable of being supported or ADF Defence Centre for Occupational Health contracts, etc)
	Training	Operational health planning should be to institutionalise in the Preventive Medicine Sergeant and Warrant Officer training continuum and for all 03 Officers and above
		New EOH Officers need initial tactical training to assist in contextualising didactic skills acquired in university (ADF and NZDF). Focus should be on practical application of skills especially in Field Hygiene. Consideration must be given to develop an ADF EOH / FHP Initial Officer Course.

Table 3. Panel Discussion 3: EOH in Garrison Operations and Academia

Panel Focus	Fundamental Input to Capability	Key Points
Shifting from deployment to garrison priorities	Personnel	Defence Work Health Safety Occupational Health policy should be amended to reflect the current environment (financial and personnel constraints) and Defence operations (internal Occupational Hygiene capability to support Defence). Policy mandating Level 2 Occupational Hygiene does not align with civilian terminology and is not achievable
		Suggestions to support personnel shortfalls in joint environments (e.g. Joint Health Command Butterworth Clinic) included: posting an Army Preventive Medicine Technician, deploying one as part of the Ready Command Group element (integral), or using locally employed resources. All suggestions were seen as improving the delivery of Force Health Protection
		A program to develop and mentor new ADF EOH professionals is recommended; focussed on practical application of EOH in the ADF. This will better prepare new ADF EOH personnel for isolated posting/ deployed roles
		The civilian mining workforce is softening. There is a downward trend in remuneration and numbers of Occupational Hygiene employed in this sector potentially providing a short term workforce solution for Defence
	Training	AIOH accreditation requirements were revised following the closure of the Deakin University Occupational Hygiene program. The University of Wollongong can offer course credit to ADF professionals who completed related studies. A Defence specific graduate certificate in WHS was discussed; if implemented/developed additional training to allow Australian Institute of Occupational Hygiene (AIOH) accreditation would be required
		Occupational Hygiene Training Association (OHTA) facilitates the ability to attain full membership of the AIOH via intensive five day workshops and examinations.
		Theoretical training provided to commissioned ADF EOH personnel (e.g. under– or post–graduate) needs to be complemented with practical exposures encountered in ADF workplaces—specifically in deployed environments
		Initial Occupational Hygiene training at the Graduate Certificate level is appropriate for the workforce —however this is not available through civilian institutions
		Due to civilian Occupational Hygiene training constraints; with these focused at the Masters level (Australian Qualifications Framework 9 which aligns with Certification under the AIOH)—it is unlikely Defence will achieve Masters qualified personnel in the medium term. Developing Masters level qualified personnel requires amendments to training continuums and time
		There is no service training spectrum for Work Health Safety Manual Level 2 Occupational Hygiene. The ADF EOH workforce is predominately at the Level 1 Technician. The limited number of ADF Level 2 practitioners completed this study via the Defence Assistance Study Scheme (predominately Air Force Environmental Health)

Table 4. Panel Discussion 4: Health surveillance informing health intelligence=

Panel Focus	Fundamental Input to Capability	Key Points
Improving health surveillance to inform health intelligence	Doctrine	There is a current gap in joint and service policy specifying how health surveillance information collection at the tactical level informs operational and strategic health intelligence products and the follow-on feedback loop. ADF Health Manual Volume 20 - Preventive Medicine would be the appropriate document to clarify the process
	Doctrine/ Materiel	Developing an MOU among the five-eyes community to leverage existing laboratory capability could standardise environmental and occupational hygiene sample collection, analysis, risk reporting, data repository, and inform future health intelligence products
	Major systems	The US Army Military Exposure Surveillance Library (MESL) is a system designed to facilitate the capture and collection of environmental sampling data (contains over 65,000 files) using standardised forms and methods. It is accessible (data push and pull) by the Australian, Canadian, United Kingdom, United States and New Zealand military (AUSCANUKUS+NZ) partners and could be leveraged to fill current ADF health surveillance data collection/repository gaps
	Major systems/ Doctrine/ Support/ Organisation	The US Army maintains a laboratory in Japan capable of environmental and occupational hygiene sample confirmatory analysis. Could a formal Memorandum of Understanding between the AUSCANUKUS+NZ group facilitate the use of this level 5 laboratory reach back capability for operations in the Pacific on a fee for service basis? Should the ADF expand the Defence Support and Reform Group standing offer panel to include a certified civilian lab? Could the mission of the ADF Army Malaria Institute be expanded to fill this gap?

In addition to the conference presentations, a formal dinner and awards ceremony was held where three Defence members were recognised for their distinguished service. CPL Ken Breen, Preventive Medicine Technician, 1st Preventive Medicine Company, received the EOH Deployment Award for expertly providing preventive medicine support on six different exercises and operations within Australia as well as Papua New Guinea over the previous 12 months. FLTLT Sean Walden, OIC Environmental Health Royal Malaysia Air Force Butterworth Health Clinic, was awarded the EOH Garrison Award for providing superior EOH support to personnel assigned to the base as well as the numerous units rotating through the region on recurring exercises. LTCOL Paul Byleveld, Specialist Reserve, 3 Health Support Battalion, received the ADF EOH Lifetime Achievement Award for his expertise in water and sanitation while serving the ADF, NSW Health Department, and other international relief organisations over the past 25 years.

Image 1 (L to R: LTCOL Byleveld, COL Brennan (Dinner Guest Speaker), CPL Breen, FLTLT Walden)

Conclusion

Despite these individual and other organisational successes, some of the issues highlighted during the panel discussions were identified eleven years ago when the community of interest met at their last conference. A few new issues have emerged since this time. What was reassuring to the audience assembled is the motivation to find common solutions to common problems, not only within the ADF, but amongst the broader international community. Senior leaders recognise the need to properly resource the profession in order to meet their mission mandates. Individuals within the EOH trade recognise the need to define their competencies and improve efficiencies in how they provide support both in the garrison and deployed environments. All participants see potential in formalising EOH relationships with partner nation Defence forces via established Memorandums of Understanding, especially in the area of health surveillance and laboratory analysis that informs health intelligence. Through this combination of near term efficiencies, mid-term resourcing, and long-term partnerships, the community remains confident progress will be made on many of the key issues identified in 2015 and looks forward to sharing these successes during the 5th ADF EOH Conference to be held in 2017.

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