Outline

- Review progress against 2015 Symposium development themes
  - Partner nation perspectives

- Highlight international developments in recovery and rehabilitation of military personnel in the last year
  - Published academic studies
  - Research in progress
The 2015 objectives

- Gap analysis for family support
- Seamless patient transition
- Improving knowledge & understanding
- Developing strategic communications
substantial output across the partner countries 2015-16
Perspectives

physical health

mental health
IMPROVING KNOWLEDGE & UNDERSTANDING
“In war the only victor is medicine”

MAYO BROTHERS
Key messages

- Extraordinary outcomes from complex severe trauma (“unexpected survivors”) have generated new challenges for recovery and rehabilitation

- Rising to these new challenges has reset the expectations of what is achievable for future quality of life and employability
Outcomes for UK service personnel indicate high quality trauma care and rehabilitation

John Etherington director, defence rehabilitation, Alexander N Bennett consultant in rheumatology and rehabilitation medicine, Rhodri Phillip consultant in rheumatology and rehabilitation medicine, Alan Mistlin consultant in rheumatology and rehabilitation medicine

Defence Medical Rehabilitation Centre, Headley Court, Epsom KT18 6JW, UK

6. Armed Services Trauma Rehabilitation Outcome (ADVANCE) Study. This study will investigate the long term (20 year) outcomes of battlefield casualties from the Iraq and Afghanistan campaigns. The medical, physical, and psychosocial outcomes of this cohort will be compared with service personnel who did not sustain injuries during operations. The study is led by a team from the Academic Department of Military Rehabilitation, Headley Court, supported by collaborating partners from Imperial College, the King’s Centre for Military Health Research, and Bournemouth University.
Physical outcomes
LADLOW ET AL, ARCH PHYS MED 2015;96(11):2048-54

- At discharge, 95% of complex trauma patients are independent in all activities of daily living (with an aid or adaptation)

- Over 75% of triple amputee patients do not need a wheelchair
Physical outcomes
BAHADUR ET AL, J ROY ARMY MED CORPS 2015

Injury severity at presentation is not associated with long-term vocational outcome in British Military brain injury

Sardar Bahadur,¹ E McGilloway,² J Etherington³

“ISS should not be considered indicative or predictive of long-term prognosis, quality of life or employability …… brain injury is both survivable and recoverable”
Physical outcomes

34 patients, 2008-12, Iraq & Afghanistan

- 47% (16) of all brain-injured patients fully independent

- 41% (14) were fully independent in their own homes, but needed help with some activities

- 79% (27) returned to either full time or part-time work
  - 11 of these to military work

11x GCS 3
91% returned to work

16x ISS 75
93% returned to work

ALL were long term survivors

4 months post-discharge
Physical outcomes
IN PRESS 2016 (JARVIS ET AL)

Walking speed, oxygen consumption and cost during walking in military amputees

Archives of Physical Medicine and Rehabilitation
Jarvis H, Bennett H, Baker R, Etherington J, Phillip R, Twiste M

Average walking gait, speed and energy expenditure for amputees is comparable to a healthy population
## Walking speed of amputees

**JARVIS ET AL 2016**

<table>
<thead>
<tr>
<th></th>
<th>Walking Speed (m/s)</th>
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<tbody>
<tr>
<td>Control</td>
<td>1.3</td>
</tr>
<tr>
<td>Unilateral trans-tibial</td>
<td>1.4</td>
</tr>
<tr>
<td>Unilateral trans-femoral</td>
<td>1.2</td>
</tr>
<tr>
<td>Bilateral trans-femoral</td>
<td>1.1</td>
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Amputee energy expenditure
JARVIS ET AL 2016

<table>
<thead>
<tr>
<th>Condition</th>
<th>Oxygen Cost (ml/Kg/m)</th>
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</thead>
<tbody>
<tr>
<td>Control</td>
<td>0.15</td>
</tr>
<tr>
<td>Unilateral transfemoral</td>
<td>0.17</td>
</tr>
<tr>
<td>Bilateral transfemoral</td>
<td>0.23</td>
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</tbody>
</table>

Busting the Myths
Bespoke Offloading Brace
RECENT RESEARCH FINDINGS (IN PRESS)
Foot & Ankle Outcome Survey Score
BESPOKE OFFLOADING BRACE (IN PRESS)

- Quality of life Post BOB
- Quality of life Pre BOB
- Sports Post BOB
- Sports Pre BOB
- Functional daily living Post BOB
- Functional daily living Pre BOB

- 22% increase in walking speed
- 12.5% increase in stride length
Mental ill health
THE ENDURING HIDDEN PANDEMIC

- Alcohol misuse is the dominant issue
- ‘Pandemic’ across military population
- A clear association with operational deployment
Alcohol misuse
COMPARISON WITH THE GENERAL POPULATION

- Alcohol related harm
- Alcohol Dependence
- Audit score of 16+
- Audit score of 8+

% of population

AUDIT: Alcohol Use Disorders Identification Test
Alcohol hazardous use*
COMPARISON WITH THE GENERAL POPULATION

*AUDIT >8, equivalent to >21 units alcohol/week
Alcohol hazardous use
COMPARISON WITH THE GENERAL POPULATION

![Graph showing percentage of alcohol hazardous use by age group for military and general population for females. The x-axis represents age groups (16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45+) and the y-axis represents percentage. The graph includes bars for military and general population populations.](image-url)
Treating the enduring hidden pandemic
ALCOHOL MISUSE

- Key discussion topic for WG2 session
Post-operational screening

DOES IT WORK?

- Randomised study of 434 US platoons (n=10190)

- At follow-up, **no significant difference** between screening and provision of tailored advice in:
  - Help-seeking from informal or formal medical and mental healthcare providers
  - Levels of alcohol misuse
  - PTSD cases
  - Common Mental Disorder cases (anxiety disorder and depression)
  - Levels of mental health stigmatisation and perceived barriers to care
Around half of military personnel with substantial mental health symptoms do not seek help.
Substantial stigma levels
ARE WE GETTING BETTER?

<table>
<thead>
<tr>
<th></th>
<th>Deployment</th>
<th>Post-Deployment</th>
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<tbody>
<tr>
<td>OMHNE 2009</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>OMHNE 2010</td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>OMHNE 2011</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>OMHNE 2014</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>TLD 2008</td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td>Battlesim 2010</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>IA TLD 2010</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>TLD 2011</td>
<td>39%</td>
<td></td>
</tr>
</tbody>
</table>
Better leadership and cohesion were significantly associated with lower stigma

Cohesion alone was significantly associated with awareness of and willingness to discuss mental health

Fear of being viewed as weak and being treated differently by leaders was the most common stigma


Published research
MENTAL HEALTH OUTCOMES

- 20 papers from KCMHR/ADMMH in 2016
  - See Kings Centre for Military Health Research [website](#)
  - List of papers (references + summary findings) provided to WC21 Secretariat
In press research
IMPACT OF TRAUMA RISK MANAGEMENT (TRiM)

- A peer-group delivered risk assessment after traumatic events
- TRiM does not improve mental health
- Combat exposed personnel with mental ill-health symptoms more likely to access specialised mental health services if have received TRiM
Non-deployment Factors Affecting Psychological Wellbeing in Military Personnel: Literature Review (Greenberg et al 2016, in press)

- 50 papers met criteria

- **Determinants of non-deployment stress:**
  - Relationships (leadership support; social support; harassment & discrimination)
  - Role-related stressors (role conflict; effort-reward imbalance; work-life balance)

- **Factors positively impacting wellbeing:**
  - Exercise
Improving understanding

PSYCHOLOGICAL INJURY

- Health and recovery pathways published on *Fighting Fit* internet portal
  - Includes *ADF Health & Recovery Member and Family Guide* (completed June 16)
    - Lists comprehensive services and how to access them

- Annual ADF Mental Health Day (October)
  - Key theme in 2016 is “Let’s talk”
    - How to have a conversation about mental health
What have we *not* explored?

RECOGNISING NATIONAL SUICIDE DIFFERENCES

- The prevalence, causes and mitigating factors for suicide attributable to Service
are we effective learning organisations?
Improving understanding
DISTRIBUTING LEARNING

- VA is a key component of physician training
- >20K medical students and >40K residents receive training in the VA each year
Improving understanding
DISTRIBUTING LEARNING

- Canadian Veteran-Specific Mental Health First Aid
- Operational Stress Injury Resource for Caregivers
- Veterans & Mental Health online tutorial
- Psychoeducational literature (online)
  - PTSD & the family
- PTSD Coach Canada Mobile Application
Improving understanding
DISTRIBUTING LEARNING: PHYSICAL INJURY
Improving understanding

AVOIDING DUPLICATE RESEARCH?

- Dutch conducting research into the utility of virtual reality in rehabilitation

- Have we adequately shared existing research?
Learning organisation
DEFINITION—GARVIN 1993, HBR

- **Five critical activities**
  - Solving problems systematically
  - Experimenting with new approaches to work
    - Allow people to make mistakes
    - Encourage people to generate alternative ideas
  - Learning from past experience
  - Learning from others
  - Transferring knowledge throughout the organisation
"The one thing harder than getting a new idea into the military mind is getting an old one out"

BASIL LIDDELL HART
SUPPORT SEAMLESS PATIENT TRANSITION
Seamless patient transition
CANADIAN FORCES OMBUDSMAN REPORT 2016

- To retain medically releasing members until all benefits and services in place
- To establish a ‘Concierge Service’ as a single point of contact for personnel & their families
- To create a secure web portal where single data entry supports application for multiple services
Seamless patient transition
IMPROVING PROCESSES

- **Improving assessments pre- and post-separation**
  - ADF has reinforced the requirements of separation health examinations
    - Emphasised need for summary for civilian GP
    - Kessler 10 psychological distress scale incorporated
  - DVA introduced a post-separation GP health assessment
    - For regular and reserve Service members
Seamless patient transition
INTEGRATED HEALTH RECORD (HAIMS)

- Health Artifact & Image Management Solution
  - Allows e-record transfer between DoD and VA
  - ‘Enterprise-wide’ data sharing
    - Documents, radiographs, photographs, ECG, audio files
  - Makes e-version of Service Treatment Record available to Veterans Benefits Administration

www.health.mil/datasharing
Patients for whom standard prosthetic sockets provide an inadequate outcome can be referred for Direct Skeletal Fixation (‘osseointegration’).
Seamless patient transition
ESTIMATING VETERANS’ NEEDS

- *Counting the Costs* study
  - Estimates needs of transitioned veteran population for Third Sector charity planning requirements
    - At least 66,000 will require support of charity sector as veterans of conflicts from Gulf War 1 and beyond
Ongoing research
LONGTERM PHYSICAL (& PSYCHO-SOCIAL) OUTCOMES

LONGITUDINAL COHORT STUDY

- 600 battlefield casualties vs 600 non-exposed controls
- Powered to detect increased prevalence
- Baseline, 5, 10, 15 & 20 year follow up

- Osteoarthritis
- Mental Health Outcomes
- Cardiovascular disease & illness
- Mortality
- Vocational Outcome
- Hearing loss and tinnitus
Creating employability
TBI INPATIENTS: 3 YEAR STUDY

Vocational Independence Scale

- Unemployed: 6%
- Sheltered: 1%
- Supported: 11%
- Transitional: 27%
- Competitive: 55%

92% Community Employment

Supported + Transitional + Competitive

Dharm-Dhatta, Gough, Porter et al.
Successful outcomes following neurorehabilitation in military traumatic brain injury patients in the UK.
Journal of Trauma and Acute Care Surgery 2015;79(4): S197-S203
GAP ANALYSIS:
FAMILY SUPPORT
Gap analysis
FAMILY SUPPORT & OUTCOMES

- Initially a Navy/Marine Corps program
- Now implemented across DoD
- Provides a ‘family resilience service’
- Partnered with UCLA to research resiliency

Family OverComing Under Stress
www.focusproject.org
Gap analysis
FAMILY SUPPORT & OUTCOMES

- Medium-term mental health outcomes in battle casualty patients and their relatives
  - Interim report available

- UK ‘Wounded Injured & Sick’ family support analysis completed summer 2016

Verey, A, Keeling, M, Thandi, G, Stevelink, S & Fear, N (2016). 'UK support services for families of wounded, injured or sick Service personnel: the need for evaluation’ *Journal of the Royal Army Medical Corps*
Children of military fathers with PTSD study

- US DoD funded (complete)
  - 1400 children of 600 fathers
  - Deployment of father is not ‘bad’ for children
  - Fathers having PTSD is ‘bad’, particularly for boys <11
  - Paper in preparation

Adolescent add on study

- US DoD funded
  - 75% complete
DEVELOP STRATEGIC COMMUNICATIONS
Building the strategic message

- Transferring military know-how to the civilian healthcare community
  - Director of Defence Rehabilitation was the National Clinical Director for Rehabilitation for NHS England, 2013-2016
Building the strategic message
VETERAN PARALYMPIANS

Proud To Serve My Country Again
Building the strategic message
ROYAL PATRONAGE
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WARRIOR CARE IN THE 21ST CENTURY

@WarriorCare
#WarriorCare21

Resilience • Recovery & Rehabilitation • Reintegration