Evacuation ... from the battlefield to initial medical treatment ... could take hours or even days

100 years of military health experience

Medical care for our wounded soldiers has improved dramatically since the First World War

As we commemorate the centenary of the Gallipoli landings, it is timely that we reflect on the experiences of military health practitioners and the care they have provided our wounded and sick soldiers.

The Great War, which on many fronts pursued a static trench warfare strategy of attrition, was costly in terms of Australian casualties. Of the 416 809 who enlisted, more than 60 000 Australians died and 156 000 were wounded[1] — a death toll nearly twice that of the Second World War (39 000 deaths),[2] and difficult to compare with the 40 killed and 261 wounded in action in Afghanistan. Apart from obvious ballistic and blast-fragmentation wounds, our Great War soldiers were also confronted by conditions such as trench foot, frostbite, trench mouth, pneumonia, dysentery and tuberculosis.[3] They faced chlorine and mustard gas poisoning, and suffered shell shock or war neurosis. The descent from health to neurosis was explained by the constant exposure to death and destruction, the apparent pointlessness of the fighting, lack of information, and the inhumanity of the conflict. Our forward medical teams were equipped with splints and bandages. Evacuation by stretcher from the battlefield to initial medical treatment at an aid post, sometimes no more than a mile away, could take hours or even days. Many died simply through the lack of first aid.

Treatment commences on the battlefield

This contrasts with the experience of the modern soldier. The signature weapon during recent operations in Iraq and Afghanistan was the improvised explosive device, often packed with bolts or nails designed to increase its effectiveness. While improvements in body armour have increased survival rates for those injured by such weapons, wounds to the face, legs and arms in survivors are more complex. For those wounded on the battlefield today, the 10–1–2 rule applies: control of haemorrhage and opening of the airway are undertaken within 10 minutes of wounding, advanced resuscitation within an hour (either in transit or in a health facility), and surgery within 2 hours. All non-health personnel receive "care of the battle casualty" training, facilitating immediate first aid by colleagues, often while still under fire. This includes controlling catastrophic haemorrhage by applying arterial tourniquets and haemostatic wound dressings, clearing the nasopharyngeal airway, and dressing penetrating chest wounds. Forward surgical health facilities undertake immediate triage, resuscitation and assessment, including whole body x-ray computed tomography if required, before initiating damage control surgery. Fluid resuscitation is guided by the 1 : 1 : 1 (red blood cells : plasma : platelets) principle. Damage control surgery aims to control haemorrhage and to debride obviously devitalised tissue before performing further resuscitation in a forward intensive care unit (ICU) and evacuation to a higher-level facility. Negative pressure dressings facilitate frequent debridement of contaminated wounds.

Rapid evacuation has dramatically reduced the number of ward beds required in deployed hospitals, from an ICU-to-ward ratio of 1 : 16 in the 1st Australian Field Hospital during the Vietnam War to 1 : 2.5 in a typical North Atlantic Treaty Organization-defined Role 3 hospital (ie, one with specialised surgery and advanced diagnostic facilities) in Afghanistan. Aeromedical evacuation is conducted by military critical care teams equipped to provide almost the entire range of intensive care organ support. Evacuation may be to a better equipped health facility within the area of operations (a Role 3 hospital) or directly to a Role 4 facility (either in Germany or in Australia) that can provide the full spectrum of medical care. Evacuation timelines now see even the most critically injured troops returned to Australia within 5 to 7 days.

Rehabilitation starts early

Physical rehabilitation begins as soon as possible, with the aim of returning even the most severely wounded to full military duties if at all possible. Prosthetic limbs are provided not just to allow activities of daily living, but also to alleviate the stresses of military training, and of water and sporting activities. For some, the signature illness of recent military operations has been post-traumatic stress disorder (PTSD). Regardless of whether one calls it shell shock, war neurosis or PTSD, it should be unsurprising that, for many soldiers, war is a highly traumatic experience. What has improved, however, is the support provided to Australian Defence Force members: psychological preparation for operational service, mental health screening after their return, and treatment for those who require it.[4] Early intervention is vital, but the reluctance to report mental health symptoms — for fear of being seen as weak or because of its impact on a military career — remains a major obstacle. Much work is being undertaken to improve the mental health literacy of all concerned.

Australia demands that our defence force personnel receive the best possible care when placed in dangerous situations. Underlying the technological advances described here are systems that facilitate clinical research and governance that would have been unimaginable for medical officers during the Great War. Such systems provide assurance not only that the best possible care is currently being delivered, but that it will continue to improve in years to come.

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