100 years of war anaesthesia traces the journey from the WW1 trenches to hi-tech training

Military and civilian doctors from York, Plymouth and Liverpool have been outlining how military medicine has contributed to patient safety, survival and pain management since the outbreak of war in 1914 to the current day.

The session on military medicine took place at the Annual Congress of the Association of Anaesthetists of Great Britain and Ireland (AAGBI), which is being held in Harrogate from 17-19 September.

AAGBI President Dr William Harrop-Griffiths commented “Major advances have been made in war anaesthesia over the last 100 years, from the emerging clinical practices in the trenches of World War One to the hi-tech simulated training developed as a result of recent conflicts in countries such as Iraq and Afghanistan. To mark the World War One Centenary, we have made this a key theme of our Annual Congress, which brings together more than 700 anaesthetists.”

Dr Neil Metcalfe is an award-winning general practitioner from York who has a keen interest in medical history and has been widely published on the subject. His interest started with his degree dissertation on the role of the military in the development of anaesthesia from 1846 to 1918 and has led to him creating medical history modules at Hull York Medical School and Leeds Medical School.

“One of the greatest, but most unfortunate, ironies in life is how modern medicine owes some of its existence to the deadly cancer of war” he says. “The anaesthesia that was being practised at the outbreak of the First World War had not drastically altered from that of the mid-nineteenth century. But the conflict resulted in a number of major developments.

“For example, clearing stations were introduced to help triage the vast number of casualties and treat the wounded quickly and efficiently. And research carried out at those casualty clearing stations helped to popularise the combined use of nitrous oxide, ether and oxygen, which, in turn, stimulated work on the development of the anaesthetic machine.
“For the first time in history, specialist anaesthetist posts were created within the military and that newly focused expertise led to the development of the relatively new concepts of blood transfusion and resuscitation, which were vital for treating casualties suffering from shock. The physiology and treatment of shock also underwent other significant developments during this time.”

The nature and treatment of facial wounds also led to the development of endotracheal intubation shortly after the War.

“This new focus on anaesthesia led to an expansion in this specialist role as more doctors became experienced in the field and interest in the specialty increased” says Dr Metcalfe. “The fact that such considerable advances have been made in the last 100 years is a positive legacy of the First World War.”

Surgeon Captain Andrew Burgess has seen active service in numerous theatres of war, including Kosovo, Iraq and Afghanistan. He is based in Plymouth and as Defence Consultant Advisor for Anaesthesia, Critical Care and Pain, leads the largest clinical group in the Defence Medical Services, for all three armed forces.

“The last decade has seen the UK Defence Medical Services supporting operations in conflicts such as Iraq and Afghanistan” he says. “The UK-led combat trauma hospital at Camp Bastion in Afghanistan is preparing to close later this year and this is a good time to reflect on recent developments in trauma care.

“One thing that is particularly worth pointing out is how developments in the complete patient pathway have led to significant improvements in survivability, despite devastating injuries, that some might classify as non-survivable.”

“These include greater use of personal protection by the armed forces and buddy care, which provides non-medical members of the armed forces with basic training that includes basic life and limb saving techniques.

“They also reflect early airway and circulation interventions, both in the field and from the helicopter-borne Medical Emergency Response Teams.

“A number of other developments have played a significant role in pushing the limits of survivability and have also guided some developments in the NHS. These include consultant-led trauma teams, greater attention to team dynamics and refining protocols for massive blood transfusion. Other key factors include emergency donor panels, damage control resuscitation, intensive care, critical care during repatriation and facilities back in the UK. All this has been underpinned by a high level of academic research work on trauma, much of which has been based on raw data from the front line and beyond.”

Surgeon Commander Simon Mercer is a Consultant Anaesthetist at Aintree University Hospital in Liverpool and has been deployed to Iraq, Afghanistan and, more recently, to the Philippines as part of the disaster relief effort following the devastating typhoon. He lectures on anaesthesia, including an honorary post at the University of Liverpool, and is also Director of the Centre for Simulation and Patient
Safety for Cheshire and Merseyside

His talk focuses on the importance of training and research and how anaesthetists can learn lessons from conflicts.

“High-fidelity simulation will play an increasingly important role in training the anaesthetists of the future” he says. “Our role at the Centre for Simulation and Patient Safety is to provide anaesthetists and other clinicians with a mock environment that is as close as possible to the actual environment they will work in in an armed conflict.

“We use the military anaesthetic equipment they can expect to use in the field and use a wireless SimMan 3G mannequin to recreate the challenges they may face when they are performing often complex procedures in a hostile environment.

“All the scenarios are videoed and we then use the footage in debriefings. This work is also linked to the continuing professional development matrix for military anaesthesia.”

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Notes for editors

About the AAGBI
The Association of Anaesthetists of Great Britain and Ireland (AAGBI) is the leading membership body for over 10,500 anaesthetists in the UK and Ireland. The AAGBI promotes patient care, safety and advances anaesthesia through education, publications, research and international work, as well as the professional aspects of the specialty. www.aagbi.org