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Editorial

Combat medical support

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Combat Medical Support is the Primary duty of the Armed Forces Medical Services. The Edwin Smith and Ebers Papyri, both dated around 1500 BC have mention of treatment of the injured. The Iliad describes removal of an arrow from Menelaus by Asklepios. After removing the arrow a secret salve was applied to facilitate wound healing. Hippocrates recommended the use of wine to moisten wounds and promote their healing. He also described chest tube placement and the use of traction for fracture alignment. Galen, who specialized in treating injured gladiators described among other things trephining of the skull and closure of penetrating abdominal wounds.¹

We can trace the history of modern combat medical support to Dominique Jean Larrey. He evolved a medical support system for Napoleon's army with horse drawn 'Flying Ambulances' for Casualty evacuation, a corps of nursing and ambulance assistants and field ambulances for casualty care. Florence Nightingale, the founder of modern day nursing reduced the death rate of injured British soldiers in the Crimean war from 42% to 2% and set standards for compassionate and hygienic care of the wounded which are relevant to this day. The American Civil war saw the emergence of a highly organized medical care system with Regimental Surgeons, Field and General hospitals and an evolved casualty evacuation system including stretcher bearers, ambulances, ambulance trains and even hospital ships. Advances in combat casualty care in the American Civil War include the use of General Anesthesia and the introduction of competence based credentialing. Amputations were popular and life saving. A total of 7000 artificial limbs were issued to civil war amputees.

Joseph Lister evolved the concept of asepsis and used carbolic acid spray to reduce the mortality of lower limb amputations from 46 to 15%. Abdominal surgery for penetrating wounds was first described by the Russian Surgeon Viera Gedroitz who operated in a modified rail car on 183 penetrating abdominal wounds. Harvet Cushing established, 'Base Hospi-

tal 5' in the first World War in May 1917. He operated on thousands of injured soldiers removing intracranial foreign bodies with a magnet. After Wilhelm Rontgen's discovery, radiograph equipment was provided to military medical services in World War I. The clinical potential of Penicillin was first exploited in World War II. Blood transfusions became popular and the mortality of penetrating chest and abdominal wounds decreased to 25 and 10% respectively.

The concept of aggressive fluid resuscitation evolved from experience in the Korean conflict. The establishment of Mobile Army Surgical Teams and availability of helicopter evacuation reduced the lag time between injury and surgery paving way to the concept of the Golden Hour. Acute Respiratory Distress Syndrome (ARDS) was first identified in the Vietnam war. Vascular surgery for limb salvage was practiced in the Vietnam war. The modern day combat medical support with aeromedical evacuation which was developed in the Vietnam War was refined in the Gulf Wars of Desert Storm and during the Iraqi Freedom struggle.²

The Armed Forces Medical Services of the Indian Armed Forces is poised to provide comprehensive combat medical support. At the frontline, self administration of analgesic, application of hemostatic gauze and use of tourniquets are achieved in the fire zone by combatants and their buddies. The Regimental Medical Officers and their teams provide the second echelon of medical care. They are credentialed for control of bleeding, establishment of airways with cricothyroidotomies when necessary, needle thoracostomies for pneumothorax and the establishment of venous access. The advanced surgical teams in field hospitals focus on damage control resuscitation and surgery. They achieve life and limb preservation before evacuating patients to base hospitals. Tertiary care is provided at our command hospitals and rehabilitation centers provide care for paraplegics and those requiring prosthetic limbs.

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The primary challenge before us is of training and standardization of equipment and skill sets. Training is a continuum and especially in the combat setting requires mandates and imperatives for all stakeholders to constantly update with 'Best practices' on the subject. Interactive integration with advanced friendly Armed Forces will be the need for tomorrow to facilitate seamless combat care integration for tomorrow's wars.

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