

LEARNED IN CONFLICT

It goes without saying that war brings terrible consequences, yet—out of pure necessity—armed conflicts have also yielded some remarkable medical breakthroughs, including life-saving techniques that were born through improvisation during the heat of battle. Below is a list of some of the important developments from the First World War to today.



FIRST WORLD WAR

Standard use of triage (treatment according to severity of injury); plastic surgery, spurred by head wounds of trench warfare; blood transfusions and blood banks; recognition of psychological damage (shell shock) from battle.



SECOND WORLD WAR

Stable penicillin; orthopedic devices; typhus vaccine; separating whole blood into constituent products (plasma and red blood cells) to stretch supplies; advances in prosthetic design.



KOREAN WAR

Helicopter evacuation of injured troops was a development that grew into civilian medevac services.



VIETNAM WAR

Mobile blood banks; the field of vascular surgery, reconstruction of damaged blood vessels, rather than amputating limbs.



MODERN WARS AND CONFLICTS

One-handed tourniquets; hemostatic bandages that fuse directly to red blood cells to instantly stop bleeding and seal wounds; rapid blood transfuser to

replace drip method; portable medical information on identification cards; portable intensive care units on stretchers; damage control surgery and long-distance robotic surgery; sternal intraosseous devices to inject fluids directly into bone marrow in the breastbone, rather than through intravenous catheters; miniaturized devices, including ventilators and diagnostic equipment; freeze-dried blood products; use of whole blood, additional plasma and hypertonic saline for trauma transfusions; diagnostic link between post traumatic stress disorder and mild brain injury; bionic prostheses and direct nerve control of artificial limbs; drugs to treat malaria, developed by the U.S. Military Malaria Vaccine Program.