battlefield or at the scene of an accident, a saline solution about as salty as blood is administered. Since battlefield medics have to carry their supplies with them, the solution was concentrated. This hypertonic saline is “a quarter of the size and four times as strong,” says Evans. This battlefield innovation turned out to have other advantages. One problem with regular saline solution is that it seeps out of blood vessels, leaving only about a quarter of the volume in the bloodstream. Hypertonic saline is so salty it draws fluids from other tissue into the bloodstream, boosting volume by about four times over the amount of solution administered. Hypertonic saline may also reduce the “inflammation cascade” that sometimes kills days later, says Evans. As well, there’s evidence it may limit swelling of the brain in response to head injuries, thus reducing brain damage and deaths due to head trauma.

A major international trial of hypertonic saline is now being conducted in about a dozen centres throughout North America, including three in Canada, in partnership with the U.S. National Institutes of Health, but “hypertonic saline is now used quite ubiquitously,” in civilian practice, says Evans.

Dr. Daniel Lindsay, medical director of diagnostic imaging at Selkirk and District General Hospital in Selkirk, Man., has brought back to his civilian practice experience with a pain relief technique—continuous peripheral nerve block—used to treat troops wounded in Iraq and Afghanistan. Anesthetics are administered through a tiny catheter inserted next to nerves serving the wounded area, blocking pain signals before they can be transmitted to the brain. This is a huge cost saving because general anesthesia must be constantly monitored by a trained specialist since it suppresses central nervous system activity. Also, when it wears off, patients need large doses of narcotics for pain control, and they don’t always work, requiring even more specialized care.

“We used ultrasound to go down the sciatic nerve (which runs through the buttocks and down the back of the leg) to insert the catheter to diminish pain for people with amputations,” says Lindsay. “Otherwise they would be on morphine and in brain fog. Instead, they’re sitting up in the morning having breakfast. It’s a huge difference.”

A new technique for handling phantom pain—the sometimes quite severe pain perceived by amputees—has been