

Pelican BioThermal's Crēdo™ ProMed: Providing Vital Protection of Blood Products to Save Lives During Air Ambulance Trial



Problem

The Great North Air Ambulance Service (GNAAS) operate three air ambulance helicopters, which fly across the North-East, North Yorkshire and Cumbria regions in the UK. Relying on public donations to operate, the service provides pioneering pre-hospital care at the scene of accidents and incidents, rescuing hundreds of severely injured or ill patients every year.

The service wanted to introduce blood plasma onto an aircraft during a five-month trial, to increase survivability of patients in their care. In order to transport the plasma products aboard aircraft, the emergency response team needed to ensure the blood plasma was stored and transported at the correct temperature to ensure it remained intact and effective.

Plasma provides vital clotting components to help blood clots to form and to stop bleeding. Before the introduction of plasma, patients would be stabilized using blood transfusions by the GNAAS air doctor aboard the helicopter, and then receive plasma on arrival at a Major Trauma Centre.

The trial saw the GNAAS carry defrosted fresh frozen plasma on board one of its aircraft for the first time (in May 2016) because scientific studies suggest up to 30% of trauma patients with severe bleeding are no longer able to form blood clots normally by the time they arrive in the Emergency Department (ED). This meant when the patients arrive in ED, they are in a condition known as coagulopathy - whereby they haven't been able to produce enough of their own blood clots to keep up with the bleeding and so the bleeding spirals out of control.

By giving a more balanced transfusion, using equal volumes of red blood cells and plasma, the service hoped to prevent this happening to its critically injured patients, ultimately helping to save lives.

Solution

Pelican BioThermal supplied the air ambulance crew with its high-performing Crēdo™ ProMed, utilized by emergency responders and medical couriers globally, which played a pivotal part throughout the recent trial. The GNAAS utilized these thermal bags throughout the pioneering trial.

Pelican BioThermal's Crēdo™ ProMed is a robust, temperature controlled portable medical transport bag designed to ensure protected blood, pharmaceuticals, tissues and other products remain intact.

The Crēdo™ ProMed product line, which consists of three different sized bags, provides thermal protection of vital pharmaceutical products for up to 72 hours. The patented Crēdo™ uses components, such as TIC™ coolants filled with phase change material and Vacuum Insulated Panels (VIP) insulators. Due to these materials, Crēdo containers are qualified to consistently protect medical materials including blood, blood plasma and platelets within two ranges (2° - 8°C and 15° - 25°C) for up to three days.

"We know that we can depend on the security and temperature of these plasma products by using Pelican BioThermal Crēdo™ ProMed transport bags which have never let us or our patients down."

*– Andy Mawson
Paramedic*



Photos supplied by GNAAS

Outcome

Additional lives were saved thanks to the blood plasma products administered at accident scenes by the GNAAS, which were safely transported in Pelican BioThermal's temperature controlled packaging.

At the beginning of the trial one of the service's helicopters attended a road traffic accident where motorcyclist, John Beaumont, had suffered catastrophic life-threatening injuries including; a shattered face, broken femur, snapped forearm, broken shoulder blade, fractured collar bone, five spinal fractures, four neck fractures, a broken leg, nerve damage and a brain herniation.

He was treated at the roadside and put into a medically induced coma by the GNAAS doctor-led team. One unit of blood and one unit of plasma were administered. This was the first time plasma was used by the aircrew after the charity launched the trial of the pioneering pre-hospital treatment just days before. Andy Barrington, the GNAAS doctor who administered the critical transfusion, said: "John had that terrible combination of multiple injuries that were causing blood loss and serious head injuries. Such were the severity of those injuries; we weren't really expecting him to survive.

But nevertheless we used all the tools at our disposal, including plasma. In order to prevent on-going damage to the brain, you have to preserve blood flow. Being able to top him up with blood and plasma was key to him having a reasonable chance of recovery. Now we've got used to having plasma with us, I wouldn't want to be without it."

Father-of-two John was flown from the scene of the accident to the Royal Preston Hospital where he spent four weeks in a coma. He was one of three "unexpected survivors" whose lives were saved during the trial.

The trial by the GNAAS charity acknowledged a number of patients would have died without the new treatment and major trauma patients are alive today, including John, because of the rapid transfusions they received at the scene of their accident. The technique has now been adopted on all of the charity's active aircraft.

Paramedic, Andy Mawson, GNAAS director of operations, added: "Transfusing blood products at the scene of an incident to a critically injured patient may save their life.

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Survivor John revealed: "It was touch and go, extremely close. Doctors did not know if I would survive. Many people are flabbergasted that I did with the amount of injuries I sustained. I have no doubt that I wouldn't be here without GNAAS. It's phenomenal."

The statistics during the five-month trial:

- 376 cool boxes were prepared and delivered, split 50:50 with blood + plasma
- 36 patients received a transfusion
- 3 patients who survived were "unexpected survivors"
- 50% of patients were involved in a road traffic collision; 15% had had a serious fall and 12.5% were victims of stabbings