

Background:

Since 2013, the **medical support of armed conflicts** that covers nearly 5 million km² has justified the need to use a **new medical transport aircraft**. This air asset (fig. 1) enable the **Medical Evacuation** (MEDEVAC) of patients all at once from the point of injury to the forward surgical structures and then, immediately after damage control surgery, to the airfield that can receive strategic aircraft dedicated to their repatriation to France. The MEDEVAC Casa provides the support of **15 patients** that includes a maximum of **2 critical patients** (under mechanical ventilation). The pack is conditioned in **aero-transportable box** that contains all of the pre-hospital intensive care material (fig. 2).



Figure 1: MEDEVAC Casa CN235-300



Figure 2: Installation of the medical material on board the aircraft (MEDEVAC settings)

Patients & Methods:

A monocentric retrospective observational study including all flights performed by these aircraft from **January 2013 to December 2017** was carried out. The objectives were: i) to describe the activity of these new medicalized vectors, ii) to evaluate their relevance and iii) to consider possible evolutions.

Results:

3003 flight hours were achieved by the Casa detachment, **424 MEDEVAC** were performed for **898 patients**, a mean of 2 patients per procedure (fig 3), 88% were French soldiers. 45% were transported on a litter, **75%** of the patients were supported by the Casa from **surgical structures**. Their categorization included **10% Alpha**, **23% Bravo** and **67% Charlie**. 4% of the patients under mechanical ventilation, 34.5% had common medical or surgical pathologies, **34.2% were combat casualties mostly by explosion**, and 18.7% had usual trauma (fig. 4, 5). Affections predominated in the limbs (29%) (fig. 6). No difficulties related to the aeronautical environment were reported by the teams.

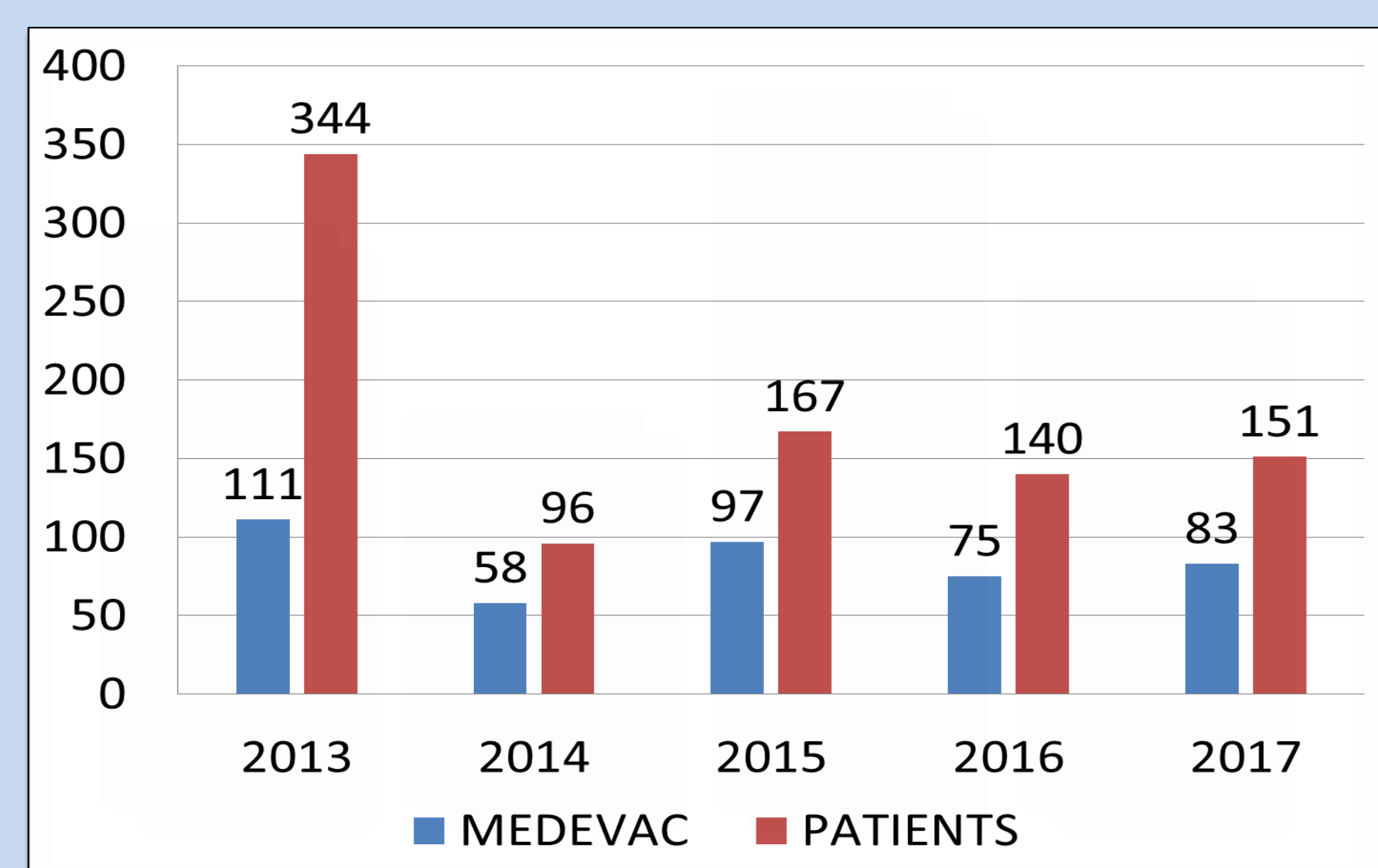


Figure 3: number of MEDEVAC and patients taken care of between January 2013 and December 2017

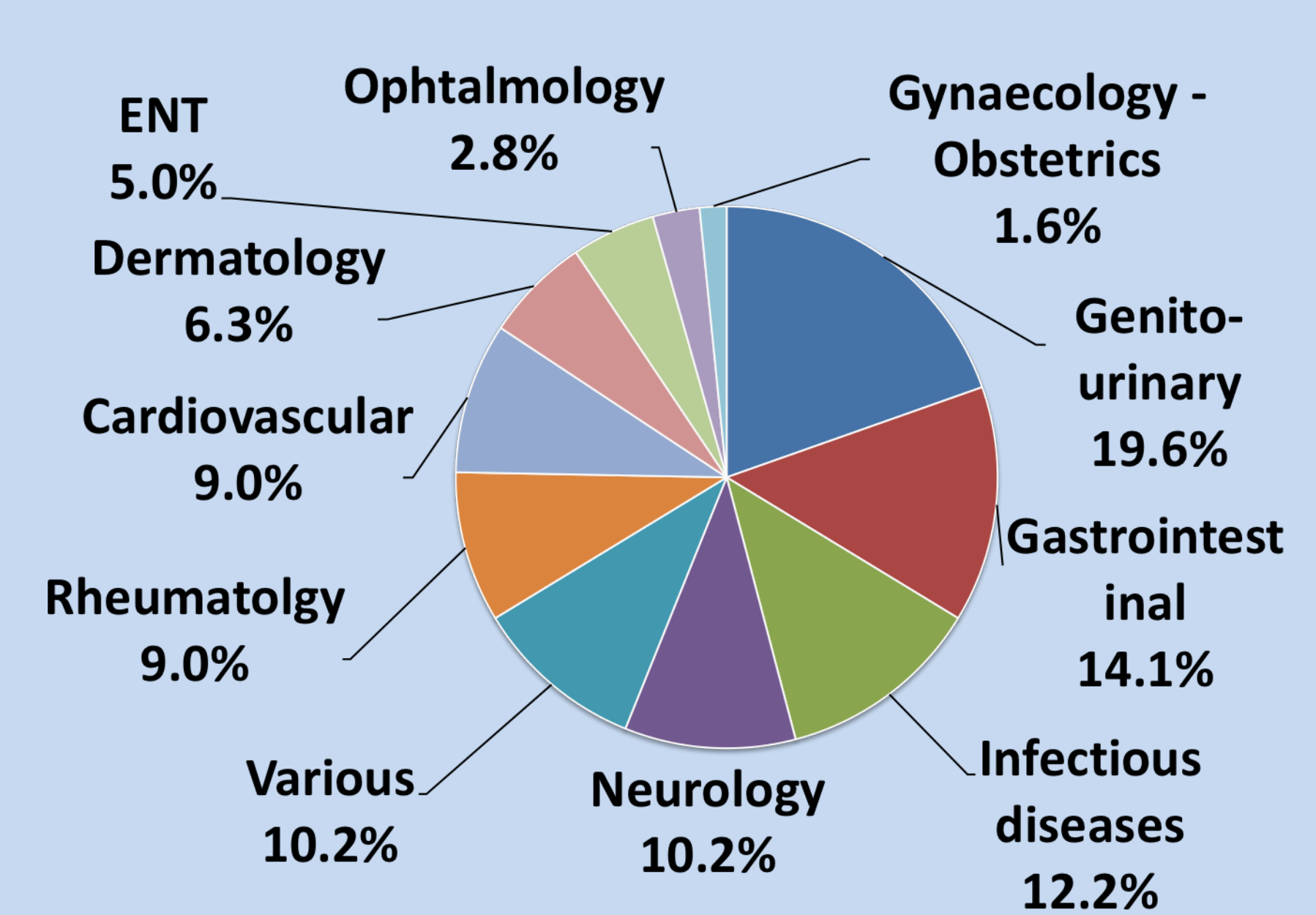


Figure 5: distribution of common medical and surgical pathologies

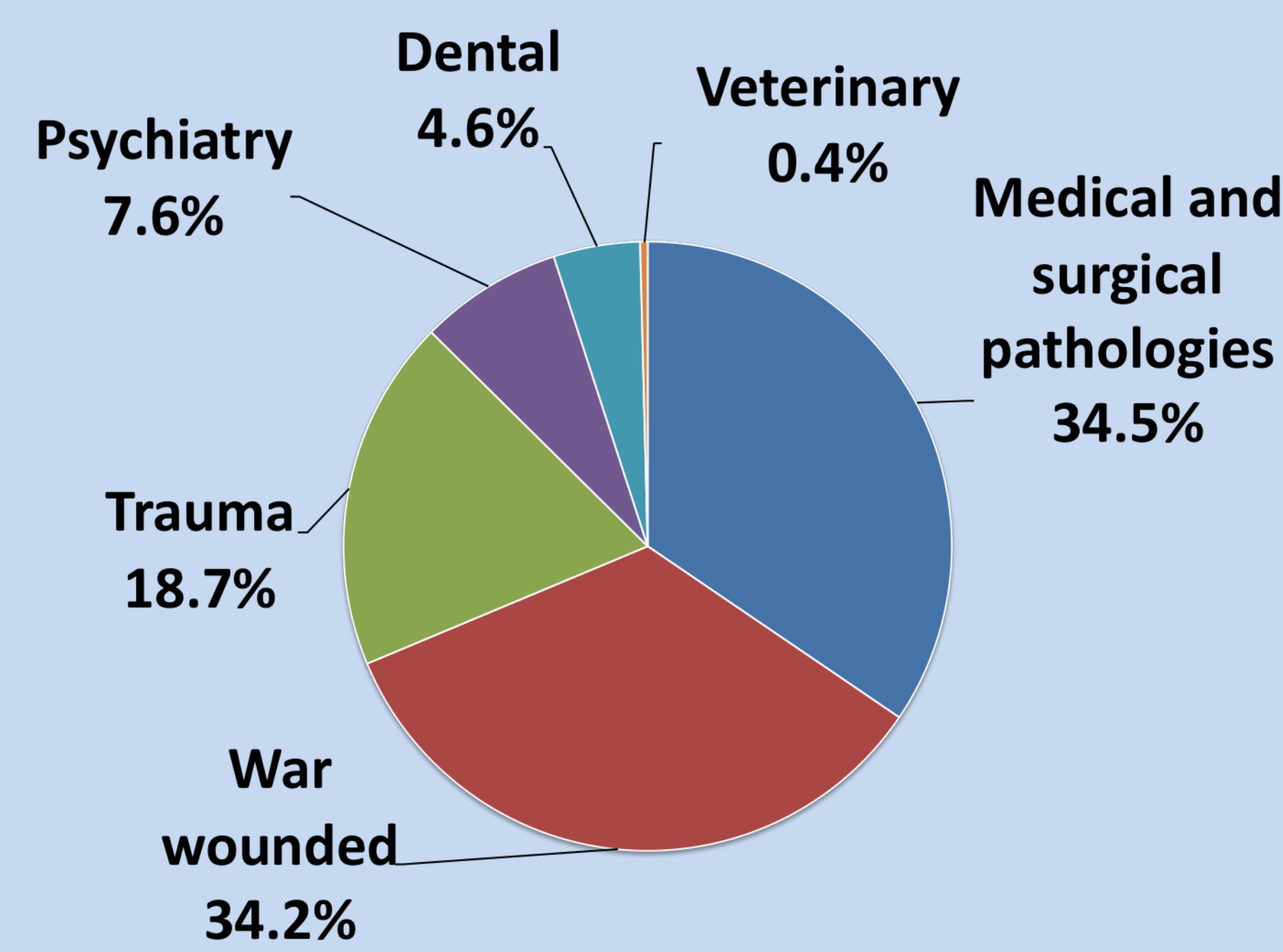


Figure 4: distribution of patients according to the type of pathology

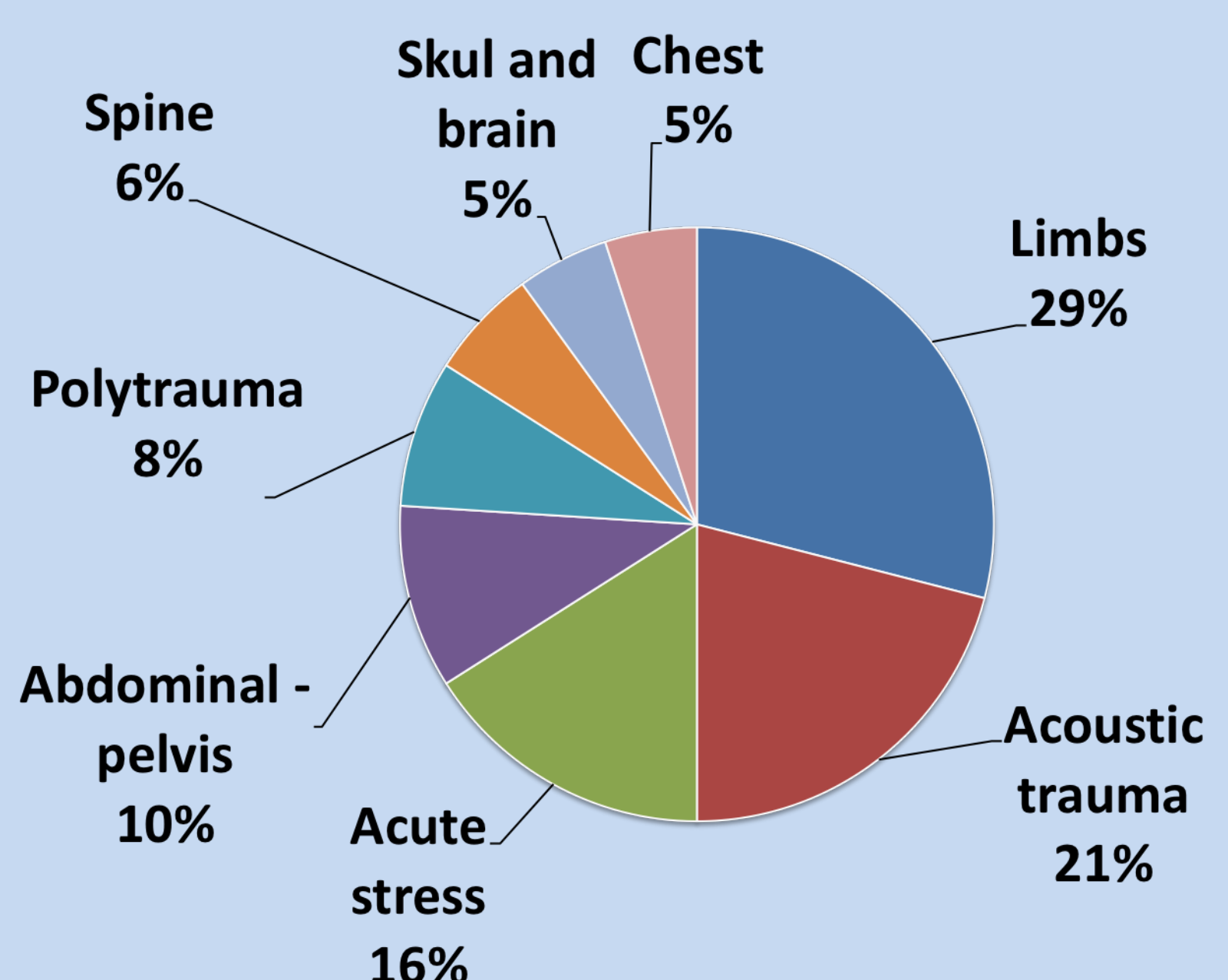


Figure 6: typology of war wounded



Figure 7: example of management of a gunshot chest wounded

Discussion & Conclusion:

This new concept of medicalization, particularly adapted to the operational involvement in the Sahel-Saharan strip, represents an essential link of the medical support, allowing the **prolonged field care** provided to the soldiers. The medical team provides in-flight intensive care adapted to the remote **damage control resuscitation** (fig. 7). The evacuation time can be particularly useful for **forward transfusion**, with the **French Lyophilized Plasma (FLYP)** or blood cells (fig. 8).

In view of this feedback, thinking is underway to **change the employment doctrine**, to **optimize the medical package** and to offer the projected personnel a **training** that is in adequacy with this demanding mission, in particular by means of **medical simulation**.

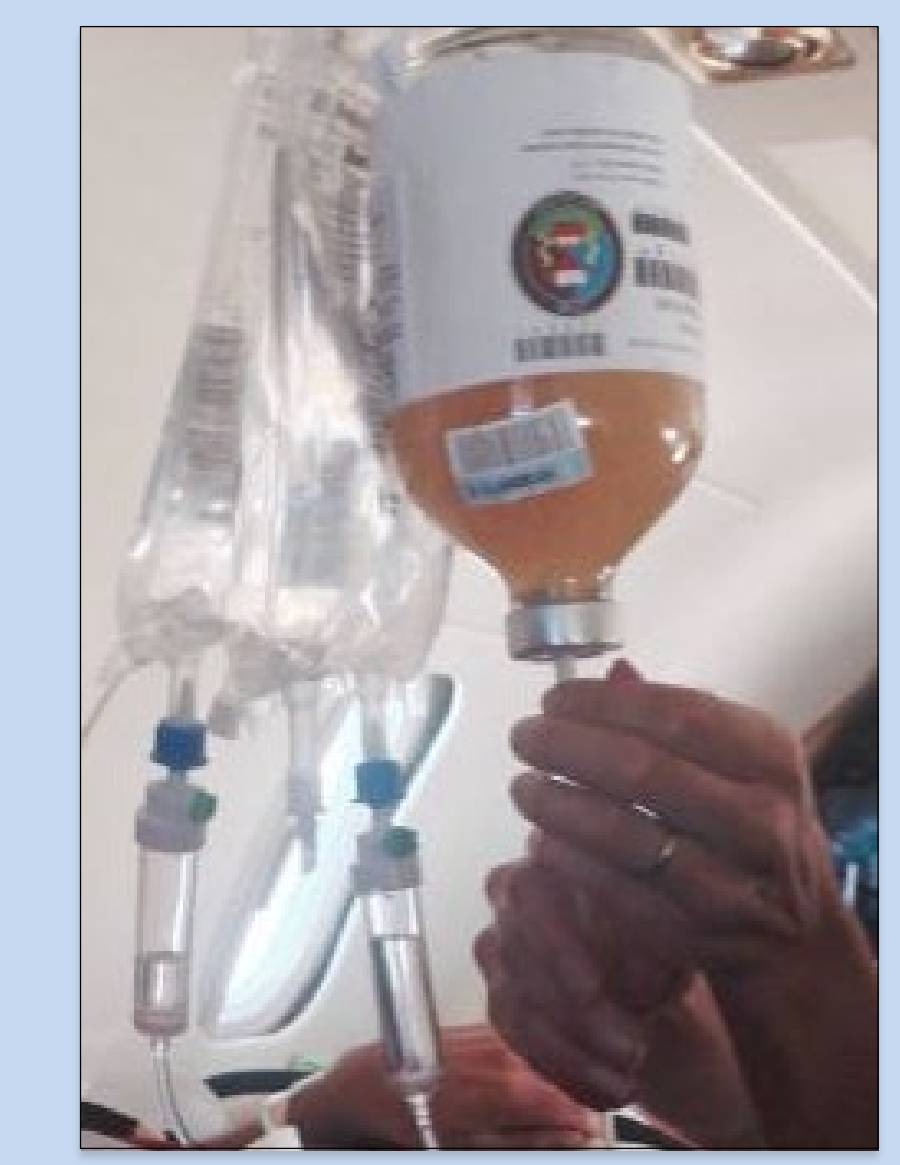


Figure 8: FLYP transfusion in-flight