

# A 160 patient evaluation of Dolphin Fluid Immersion Therapy – Fletcher J<sup>1</sup>

## Background

For patients with complex conditions selection of the appropriate pressure redistributing mattress can be complicated by many factors. For groups at significant risk such as those in intensive or critical care, those at the end of life or those who it is difficult to reposition this selection becomes even more complex with only a small range of products able to meet the need to both prevent pressure damage and meet the rest of the patient's care needs.

Dolphin Fluid Immersion Simulation® system (Joerns Healthcare LLC) is a relatively new technology that keeps the patient in a simulated fluid environment. This system helps to maintain blood flow and tissue perfusion (Evers et al, 2009) and evenly redistributes pressure, thereby eliminating high pressure points, reducing tissue deformation, and improving wound healing (Kohanzadeh et al, 2012; Mayes and Melendez, 2012; Yaguang and Melendez, 2012). The mattress is designed to reduce pressure across the body, maintain an appropriate microclimate and to promote patient comfort. The 2014 NPUAP/ EPUAP/PPPIA guidelines identify immersion and envelopment as a recognised method of reducing tissue interface pressure.

This is a review of use of Dolphin therapy in 19 hospitals with 160 patients.

In the majority of Trusts the Waterlow score is used (142 patients), where this is the case 117 of the patients were deemed to be at 'very high' risk with a Waterlow score of 20+ see **Figure 1**.

## Results

A large proportion of the patients (98) had existing pressure damage – frequently with multiple pressure ulcers on different sites of the body see **Figures 2 – 4**

In addition to existing skin damage the patients generally presented with multiple comorbidities.

6 patients were amputees and 23 were palliative, 12 cancer patients and 7 were ventilated see **Figure 5** for common comorbidities. Data on height and weight were not consistently captured but 9 patients were described as underweight or malnourished and of those it was possible to calculate a BMI, 3 were extremely high; 39.3, 53.4 and 58.3.

Patients were clearly sick spending an average of 29.5 days on the Dolphin therapy (range 1 day - 194 days). 90 patients had previously been placed on dynamic mattress, 36 = alternating pressure mattress, 33 = continuous low pressure, 20 = low air loss and 1 a powered hybrid and the remaining 65 were placed on the Dolphin from admission (5 no data recorded).

## Outcomes

49 patients had improvement of their pressure ulcers and 7 patients had their pressure ulcers heal, 31 remained static. 7 patients had deteriorating in their pressure ulcers, however 3 of these patients died, 1 patient was discharged how for palliative care and 2 patients were refusing PAC interventions. 38 patients had existing moisture lesions, 27 of which improved / healed.

52 patients reported a decrease in sweating (from 61 where it was reported as a problem) , 115 described an improvement in comfort (43 recorded as N/A and 2 said no improvement in comfort) . 107 patients were identified as having pain as an issue , 97 reported an improvement in pain, 9 a partial improvement and only 1 no improvement. 70 patients were turned less frequently than on the previous mattress and 13 less frequently part of the time. Non concordance with PAC was identified as an issue for 47 patients and this resolved completely with 27 patients and partially for 20.

Overall staff and patients commented very positively on the Dolphin

*“Nursing staff maintain one hourly turns due to end of life care and documentation. All staff liked the therapy and we're pleased at how easy it was to use. Patient and family were very happy with the product.”*

*“Brilliant cover”*

*“Patient became self repositioning!”*

*“Staff found the dolphin very easy to use and felt the pt skin remained intact because of dolphin technology. Pt previously developing red area on skin on the xxx mattress”*

## Conclusion

For these 160 complex patient Dolphin therapy provided a range of improved outcomes including better skin outcome, better comfort and improved concordance. Staff also felt the Dolphin was beneficial for their patients and care delivery.

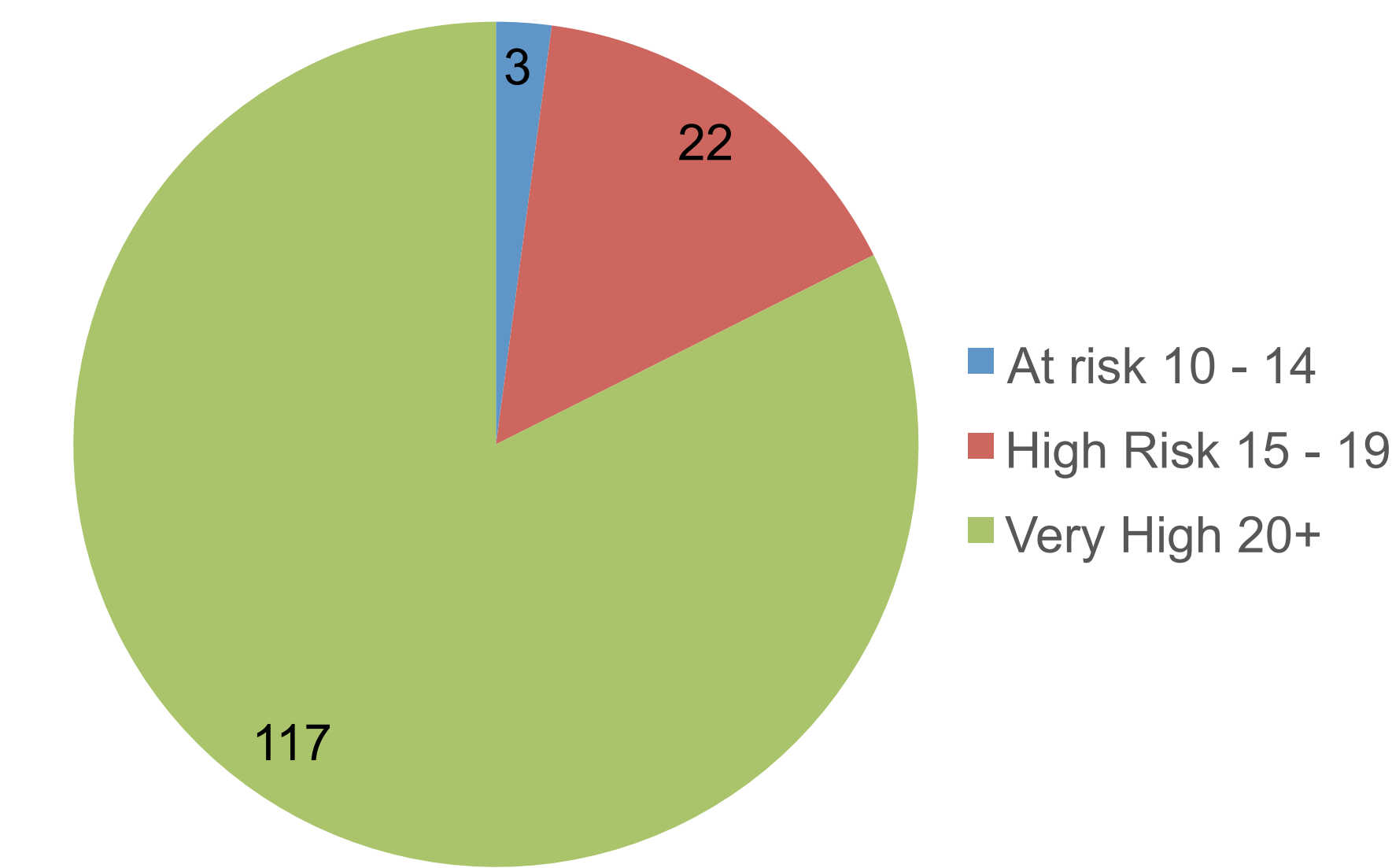


Figure 1. Patients' Waterlow Scores'

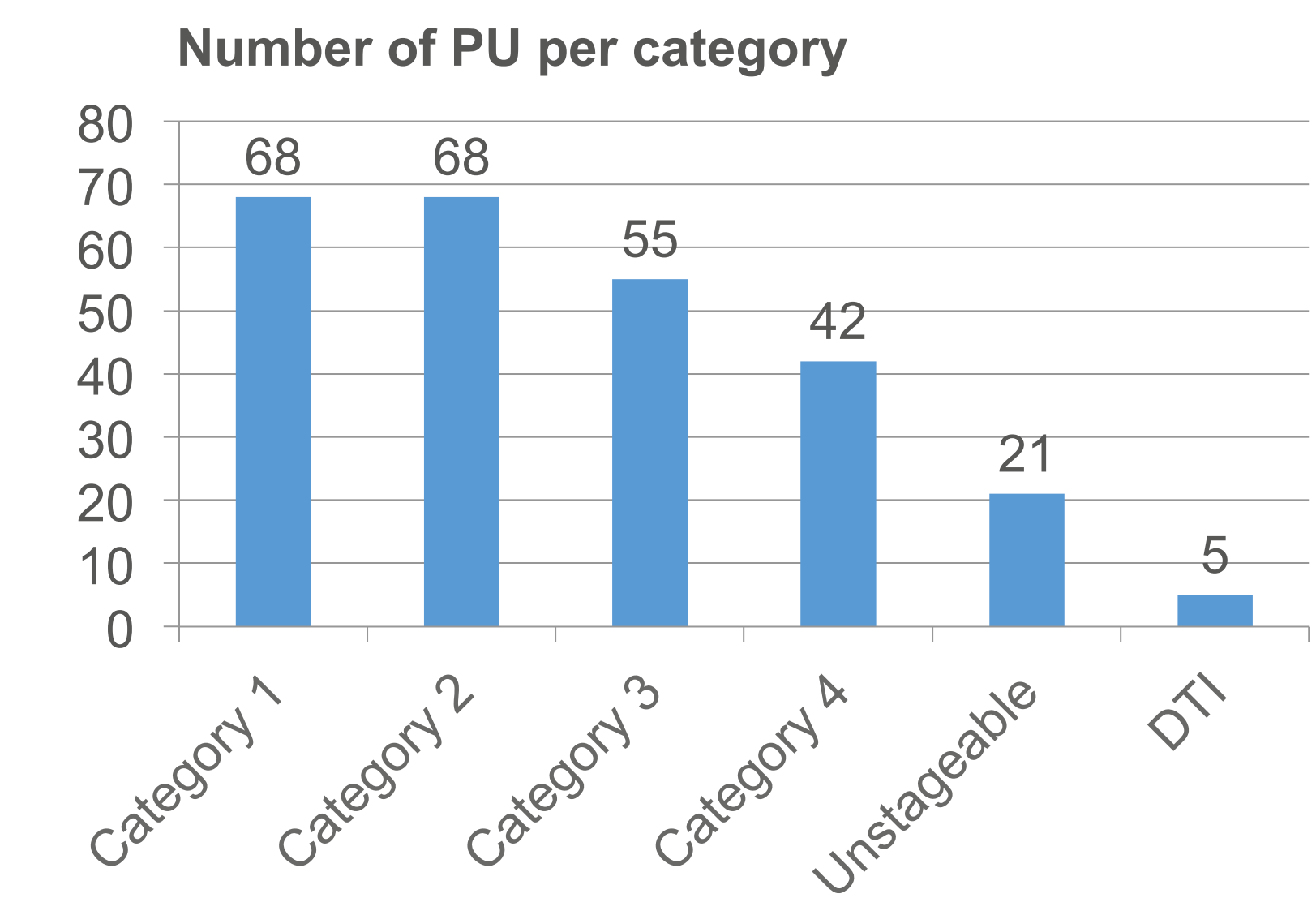


Figure 2. Categories of damage

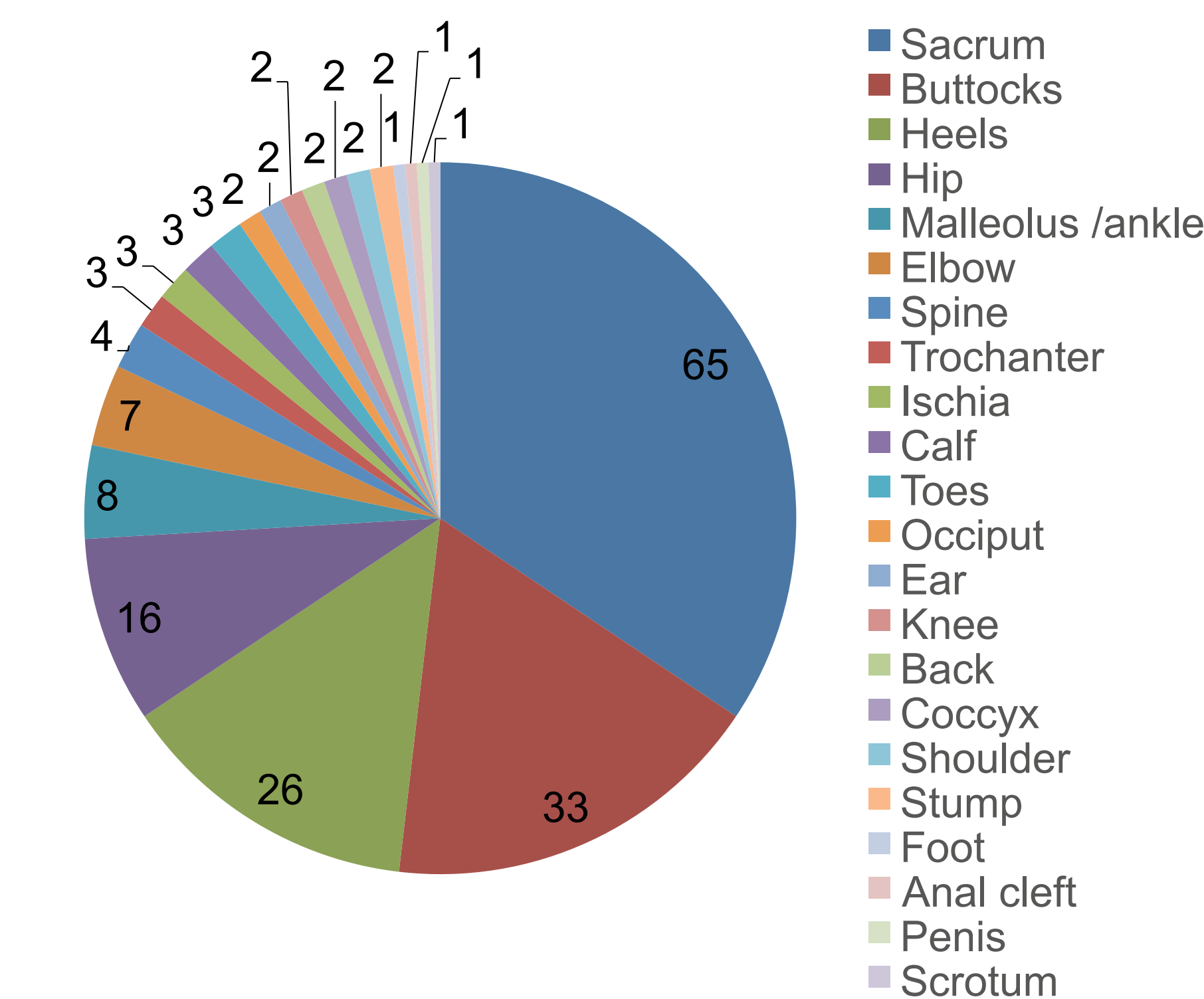


Figure 3. Location of damage

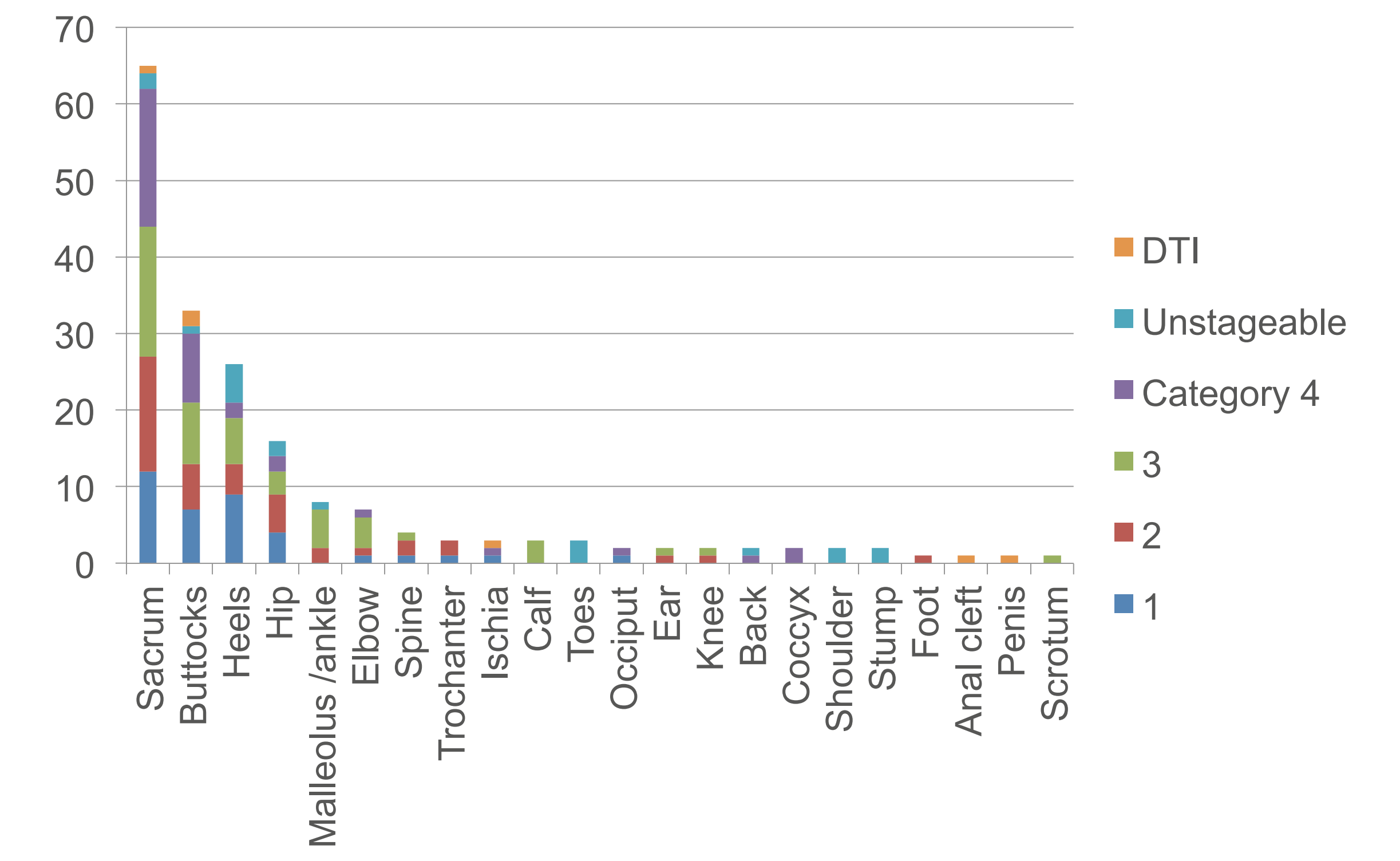


Figure 4. Showing location and category of damage

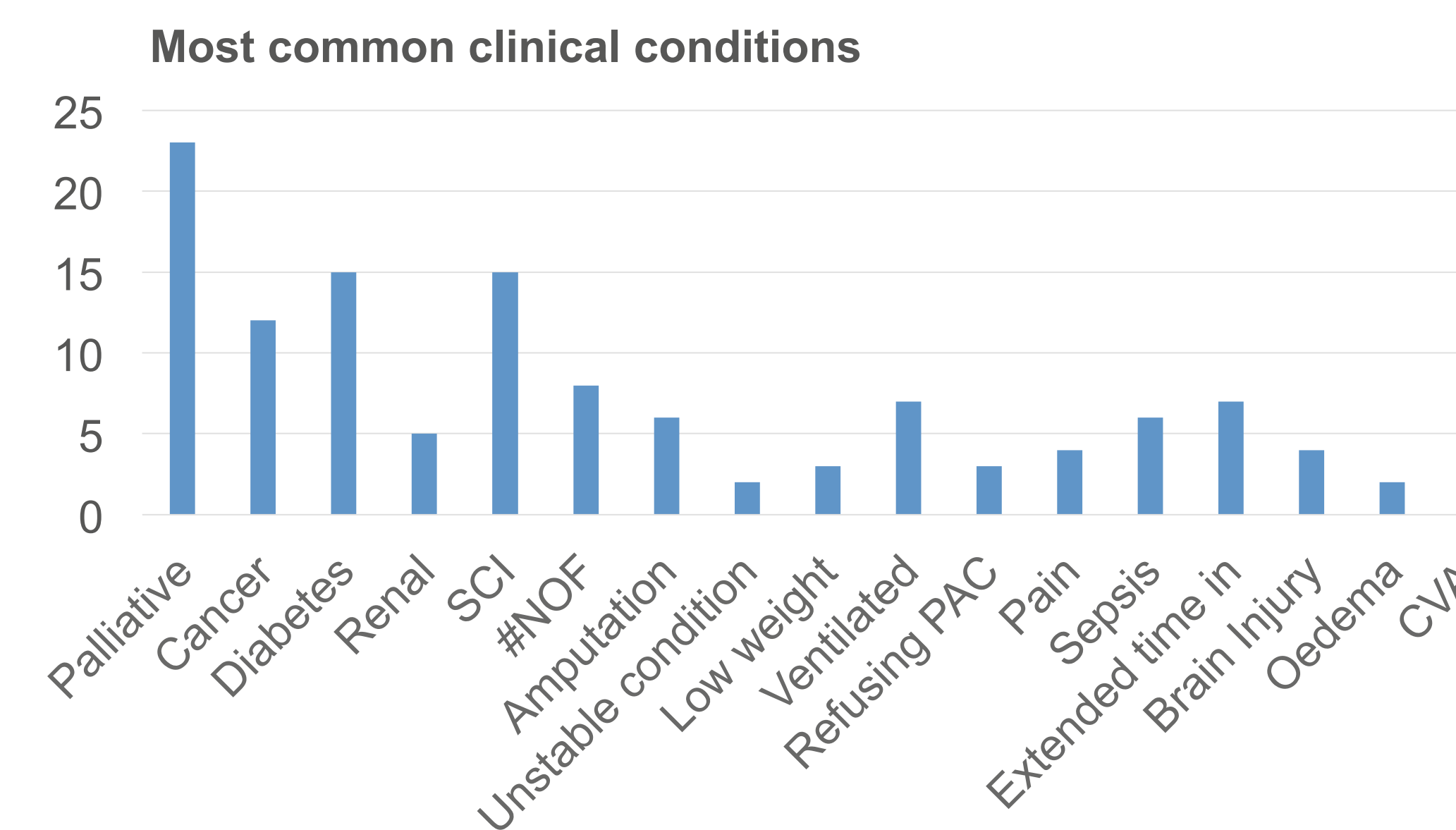


Figure 5. Most common clinical conditions