

## How does bed-frame design influence tissue interface pressure? A comparison of four different technologies designed for long-term or home care.

Call E, Baker L (2008). *Journal of Tissue Viability*. *In press*

### Overview

There is a growing interest in the role bed frame design plays in reducing pressure ulceration by effectively managing pressure and shear. To begin the exploration, this laboratory-based study was undertaken to examine the differences in loading that 4 different profiling beds (commonly used in community care within the USA) apply to the body before, during and after elevation from flat to the most commonly used nursing position i.e. Fowler's position.

### Methodology and measurements

Four bed frames were tested:

Minuet® 2 with Pro-contour® Advance profiling

Jeorns®

Solo™

V-Riser

The Fowler's position is one of backrest elevation with knee raise: the angles of elevation were standardised across all four frames and were based upon the highest elevations for Bed A. The same foam pressure redistribution mattress draped with a hospital sheet was used for all tests.

The bed frame position was moved (using the electrical handset provided with each frame) to head high position while simultaneously the knee-break was raised. The elevated position was held for a further two minutes then changed back to flat (0°). Interface pressure recordings were measured throughout on the occiput, buttocks, heels and scapula using a pressure mapping system XSENSOR®.

### Results

Compared with the 3 other bed frames tested, the **Minuet 2** with **Pro-contour** Advance profiling gave statistically significant lower interface pressure profiles and exerted lower pressure gradients between the flat and Fowler's position compared to the other 3 bed frames.

### Conclusion

This study identified that the design of the bed frame can have a significant effect on pressure exerted at the mattress-body interface with the **Pro-contour** Advance profiling delivering superior load management.