

INTRODUCTION

What are Pressure Sores?

- Defined as 'an area of skin and the tissues below damaged as a result of being placed under pressure sufficient to impair its blood supply'.
- Typically occur in patients confined to bed or chair by illness, e.g. Spinal Cord Injuries (SCI) (1)
- They can be graded 1 to 4 (2)



Image 1: Example of an occipital pressure sore (4)

Pressure Sores and Spinal Patients

A 2022 audit conducted in the University Hospital of Wales' ICU found that 15.5% of spinal patients in ICU developed pressure sores. Reasons for include the prolonged periods of immobility and other co-morbidities (3). Since then, new manual handling guidelines have been implemented (Figure 1) and this study aims to evaluate the impact of these changes on pressure sore incidence.

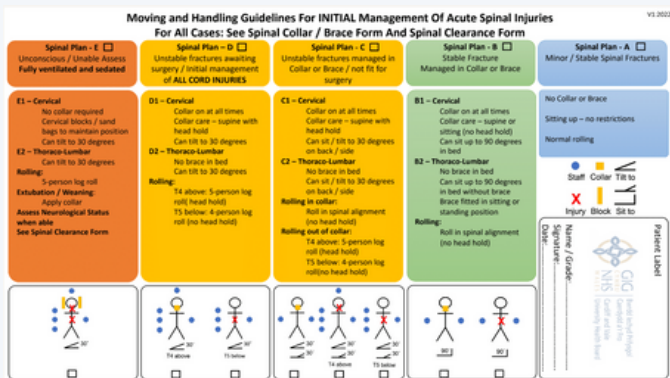


Figure 1: New Manual Handling Guidelines for Acute Spinal Injury Management

AIMS

- Evaluating the impact of protocol changes on patient outcomes
- Examining frequency of pressure sores in ICU spinal patients at University Hospital of Wales, Cardiff.
- Completing data analysis on patient demographics.

CRITERIA

Inclusion:

- Patients admitted to ICU with any spinal injury or pathology between January 2023 and December 2024.
- Grade 2 or above pressure sores over bony prominences such as occiput, sacrum, neck, heel and chin.

Exclusion:

- Patients admitted outside of this timeframe.
- Pressure sores Grade 1 or below.
- Pressure sores over non-bony prominences or caused by intubation (including but not limited to the mouth).

METHODOLOGY

- A DATIX database was produced with all reported ICU pressure sores between January 2023 and December 2024
- Through notes and discharge summaries, patients reported with any spinal injury or pathology were highlighted.
- A separate database was then produced with all patients with spinal injury or pathology admitted to the ICU between this time frame.
- Information regarding demographics, grade, location and guideline adherence were taken from DATIX and hospital notes.
- Data analysis was completed using SPSS.

RESULTS

There were 91 ICU spinal patients on the spinal database, of which 2 were excluded as they were misreported as spinal patients, and 4 others excluded due to still being in hospital at the time of this study. Therefore, a total of 84 spinal patients were included:

- Of these 12 spinal patients developed one or more pressure sores in ICU (14.3%)
- 35.3% were G2 or above occiput (n=6), 23.5% were sacral (n=4), 23.5% were heel (n=4) and 5.9% were collar/lower neck (n=1)

The following data was then collected and compared between patients who developed pressures in ICU (n=12) versus those who did not (n=72):

- Age on Admission
- Duration of Hospital Stay and ICU Stay
- Duration on Advanced Respiratory Support
- Head Injury
- Adherence to Manual Handling Guidelines

Aside from age on admission, all factors were found to be statistically different between the two groups, as seen in figure 2. Head injuries were not significant in the development of pressure sores ($p > 0.05$, CI: -0.34 - 0.34); 42% of both patients with pressure sores (n=5) and those without (n=30) had head injuries.

A Chi-Squared test of independence showed a significant relationship between guideline adherence and pressure sore development. $\chi^2(1, N = 84) = 7.89, p = 0.019$.

Of patients that did not develop pressure sores, 5.8% did not adhere to the guidelines, compared to 33.3% in those who did (see Figure 3).

Occipital pressure sores formed the majority of sores developed in spinal patients in the ICU (35.3%). Statistical analysis showed a significant association ($p < 0.05$) between occipital pressure sores in spinal patients and the overall ICU pressure sore population. Notably, spinal patients made up 60% of all Grade 2 or higher occipital pressure sores.

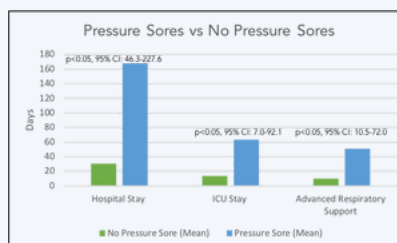


Figure 2: Comparison between pressure sore and non pressure sore patients

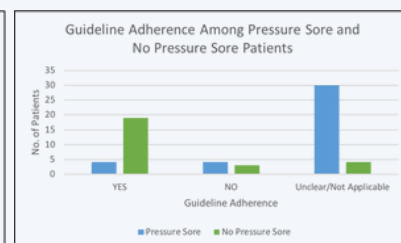


Figure 3: Manual Handling Guideline adherence among pressure sore and non pressure sore spinal patients

CONCLUSION

The findings of this audit are consistent with that of the original; spinal patients in ICU have an increased risk of developing pressure sores, especially due to the significantly longer periods of time spent in hospital and in ICU.

Implementation of the new manual handling protocols did see a reduction in pressure sore occurrence from 15.5% to 14.3% suggesting improved patient outcomes and compliance. A limitation, however, was that 30 patients either did not require spinal precautions or documentation was insufficient to determine whether guidelines were properly implemented. Also, as the majority were occipital sores, further studies or updates to collar care protocols and prevention strategies may be warranted.

References

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Acknowledgements: Thanks to Natalia Zbrzyzna for her data collection expertise and Mr McCarthy for his supervision throughout this project.