**Reviewer ID:** Emily Procter, Kyle Diab

**Type of Outcome Measure:** Waterlow Pressure Ulcer Scale

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<tr>
<th>Author ID Year</th>
<th>Study Design</th>
<th>Setting</th>
<th>Population (sample size, age) and Group</th>
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</table>
| Wellard 2000   | Retrospective medical history audit | Not specified | N=60 (individuals who developed ulcers only), predominately unmarried males  
Mean age 43±18yrs (range 17-82yrs)  
Of the 60 cases examined, the pressure ulcer admission rate to the hospital was:  
46.7% had 1 admission  
18.3% had 2 admissions  
16.7% had 3-4 admissions  
18.3% had >5 admissions  
Average (SD) length of stay in the hospital: 91 (98) days |
| Ash 2002       | Retrospective medical history audit | SCI unit | N=144, 115 male  
Mean age = 40 (range 10-89)  
78 tetraplegia, 66 paraplegia  
49 complete, 95 incomplete  
All patients with a completed first admission to the SCI unit from 1998 to 2000  
Mean (95%CI) time since injury at admission: 14 (11-17) days |

1. **RELIABILITY** – no data available

2. **VALIDITY**

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| Wellard, S. | Descriptions in the patients’ histories were used to retrospectively apply scores according to Stirling’s pressure ulcer severity scale and the Norton, Braden, and Waterlow tools. Four histories had insufficient data, leaving N=56.  
**Spearman correlation coefficients.**  
When the scales were treated as continuous variables:  
There were significant correlations between the Stirling scores and both the Norton scores (r=-0.28; P=.039) and the Waterlow scores (r=0.38; P=.004), but not the Braden scores (r=0.03; P=.813).  
When the scales were treated as categorical variables (e.g. at risk, high risk, very high risk):  
Only the Waterlow scores were significantly correlated to the Stirling scores (r=0.32; P=.017). (Norton, r=0.14, P=.311; Braden, r=-0.08, P=.569.)  
Assessing the correlations between the three retrospectively applied tools:  
The Norton scores were significantly correlated to both the Waterlow scores (r=-0.50 or 0.56*; P<.001) and the Braden scores (r=0.48 or 0.49*; P<.001).  
*Indicates discrepancy in the article text. |
| Ash, D | Pressure ulcers were found to be significantly associated with length of stay, completeness of lesion (ASIA score A versus BCDE), surgical stabilization of the neck, tracheostomy and delayed transfer to SCI unit. Completeness of lesion lends content support to the Braden’s inclusion of sensory perception. Surgical stabilization and tracheostomy may be related to mobility and activity limitations  
Waterlow: AUC = 76 |
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<tr>
<th>Author ID</th>
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| Wellard et al. 2000 | 64% of patients – high risk  
36% of patients – very high risk |

4. FLOOR/CEILING EFFECT

5. INTERPRETABILITY

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<th>Author ID</th>
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<tbody>
<tr>
<td>Wellard et al. 2000</td>
<td>Mean (SD) Waterlow score for 60 patients: 18.9 (2.98), range 15-28</td>
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</tbody>
</table>
| Ash D. 2002 | Mean (range) Waterlow score (95% CI) and corresponding risk rating:  
All patients (n=144): 21.5 (20.5-22.6) --- very high risk  
Patients w/ ulcers at any stage (n=80): 24.1 (22.7-25.5) --- very high risk  
Patients w/ no ulcers at any stage (n=64): 18.4 (17.2-19.5) --- high risk |

Risk rating (Waterlow 1985):  
10+ = at risk  
15+ = high risk  
20+ = very high risk