An estimate of the cost of managing pressure ulcers within an acute care setting in Ireland – A Feasibility Study

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INTRODUCTION

Pressure Ulcers

• A pressure ulcer (PU) is defined as a localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear\(^1\).

• Treating one grade IV PU costs the Irish Health Service €119,000\(^2\).

• To date, no studies within the Irish health care service have explored the cost of the management of PUs of all grades

• The aim of this project was to determine the feasibility of using a health economic model to estimate the cost of management of pressure ulcers (grade II-IV) within an acute care setting in Ireland.
METHODS

• Retrospective survey design

• Analysed medical charts (n=20) and nursing notes of patients with grade II-IV PUs, nursed within an acute hospital setting

  1) Examined quantity and type of:
     - Equipment used e.g. heel boots, pressure relieving mattresses
     - Materials used e.g. creams, dressings, drugs
     - Tests undertaken e.g. ABPIs
     - Labour Costs e.g. repositioning, input from Health professionals specifically for PU treatment

  2) Obtained unit cost of each item/service from hospital’s procurement department

  3) Calculated cost per patient
## RESULTS

**Table 1: Sample Characteristics**

<table>
<thead>
<tr>
<th>Sample (n=20)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>12 Male/ 8 Female</td>
</tr>
<tr>
<td>Age</td>
<td>Mean= 68.95 years (37-95 years)</td>
</tr>
<tr>
<td>Hospital Acquired</td>
<td>6/20</td>
</tr>
<tr>
<td>Community Acquired</td>
<td>14/20</td>
</tr>
<tr>
<td>Stage 2 PU</td>
<td>11/20</td>
</tr>
<tr>
<td>Stage 3 PU</td>
<td>2/20</td>
</tr>
<tr>
<td>Stage 4 PU</td>
<td>7/20</td>
</tr>
</tbody>
</table>
**Table 2. Primary Admitting Diagnosis**

<table>
<thead>
<tr>
<th>Primary Diagnosis</th>
<th>n=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Tract Infection</td>
<td>2/20</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>2/20</td>
</tr>
<tr>
<td>Lower Limb Fracture</td>
<td>4/20</td>
</tr>
<tr>
<td>Neurological</td>
<td>1/20</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>1/20</td>
</tr>
<tr>
<td>Pressure Ulcer Deterioration</td>
<td>2/20</td>
</tr>
<tr>
<td>Sepsis</td>
<td>6/20</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>2/20</td>
</tr>
</tbody>
</table>
ASSOCIATED VARIABLES

- PU Grade
- BMI
- Mobility Status
- Continence Status
- Diabetes Mellitus
- Maelor Score
- MUST Score
PU GRADE AND COST

![Graph showing the relationship between PU grade and cost. The x-axis represents PU grade (Grade 2, Grade 3, Grade 4) and the y-axis represents total cost per patient (€). The graph indicates a trend where higher PU grades are associated with higher costs.]
MAELOR SCORE AND COST
BMI AND PU COST

![Graph showing the average cost per patient for different BMI categories: Underweight, Normal, and Overweight/Obese. The x-axis represents BMI, and the y-axis represents the average cost per patient in euros.]
# RESULTS - COSTS

## Table 3. Preliminary Cost Summary

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost of care (n=20)</td>
<td>€17,903.28</td>
<td></td>
</tr>
<tr>
<td>Mean cost per patient</td>
<td>€895.2</td>
<td>€75.7-€3,784.79</td>
</tr>
<tr>
<td>Mean cost per patient per day</td>
<td>€66.26</td>
<td>€1.3-€186.2</td>
</tr>
<tr>
<td>Mean Length of stay</td>
<td>31.8 (days)</td>
<td>5-119 (days)</td>
</tr>
</tbody>
</table>
# Data Collection Sheet for Pressure Ulcer Feasibility Study

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>Pressure Ulcer Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Name:</strong></td>
<td><strong>PU Location</strong></td>
</tr>
<tr>
<td><strong>Patient MRN:</strong></td>
<td><strong>PU Size</strong></td>
</tr>
<tr>
<td><strong>D.O.B:</strong></td>
<td><strong>Hospital Acquired (Date first report)</strong></td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td><strong>Community Acquired (Date of first presentation)</strong></td>
</tr>
<tr>
<td><strong>Gender:</strong></td>
<td><strong>Maclor Score (admission)</strong></td>
</tr>
</tbody>
</table>

| Admitting Diagnosis:   | **Maclor Score (admission)**  |
| Date of admission:    | **MUST Score (admission)**    |
| Date of discharge:    | **Mobility Status**           |
|                       | (Immobile/reduced/independent) |
| Length of Stay (days):| **Continence Status (C= continent/I=incontinent)** |
| ICU admission (Y/N)   | **Diabetes (Y/N)**            |
| Date of ICU admission:| **Maclor Score (admission)**  |
| Date of ICU discharge:| **MUST Score (admission)**    |
| ICU admission (Y/N)   | **Mobility Status**           |
|                       | (Immobile/reduced/independent) |
CONCLUSION

• Retrospective survey design unfeasible for accurate economic analysis of this kind

• Data collection laborious

• Information in patient charts inconsistent/absent/lacking

• Difficulty obtaining unit costs of products/services used
FUTURE DIRECTIONS

- Larger scale, prospective study to be carried out using tool developed
- Real time cost analysis of repositioning to be conducted
- Potential to use tool for cost analysis of other pathologies
ACKNOWLEDGMENTS

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REFERENCES


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