Applying SSKIN bundle education and dermal pads in residential homes to improve the quality of care

Ray Norris, Alistair Bielby, Natalie Freeman, Beverley Piper

Due to concerns over pressure ulcer incidence data, a collaborative project was undertaken with the aim of improving quality of care within residential homes, specifically in relation to pressure ulcer prevention. The project comprised a residential home staff education programme based on the SSKIN bundle. The objective was to enhance staff awareness of pressure ulcer risk and their knowledge of pressure ulcer prevention approaches, such as the appropriate use of skin care products (Proshield™; H&R Healthcare) and the targeted use of local pressure-relieving methods such as dermal pads (Aderma™; Smith & Nephew). To support residential home staff in putting pressure ulcer prevention theory into practice, skin care products and dermal pads were made more easy for staff to access, thereby facilitating the desired change in practice. Implementation of the project was supervised by the local tissue viability team. Tissue viability nurses — with the support of Smith & Nephew — delivered an educational package to the staff in each residential home including the SSKIN bundle and the appropriate use of local pressure-relieving techniques. A ‘stock-box’ containing supplies of dermal pads and skin care products was provided for each residential home immediately after the training — this meant that the staff could begin using these as soon as a risk assessment identified a patient who needed off-loading. Pressure ulcer incidence data routinely captured before the project began was compared with data from a similar time period following the project — this helped the authors assess and reflect upon the impact of the project.

Keywords:
- Pressure ulcers
- Prevention
- Residential homes
- SSKIN bundle

The prevention and management of pressure ulceration is one of the most critical issues confronting community tissue viability services across the UK. The issue is particularly relevant in the residential care home sector due to a number of factors, including the vulnerable nature and associated risk-status of many residents; the level of experience and training among staff; and the support systems available for staff.

The old adage ‘prevention is better than cure’ could be no better applied than in the case of pressure ulceration. Given that the cost to the health economy of managing a single category four pressure ulcer is estimated to be around £8,700, avoiding such ulceration developing in the first place is clearly a priority (Dealey et al, 2012).

However, critical to any pressure ulcer prevention strategy is the early recognition of risk and the swift implementation of appropriate preventative measures. Much work has been done on the recognition of risk and classification of patients with, or in danger of, pressure ulceration. However, less attention has been devoted to identifying the most effective and timely interventions, as well as the most appropriate prevention methods.

Figure 1 illustrates the disparity that can arise between the time taken to develop pressure-related tissue damage and the time that elapses before appropriate preventative action is initiated. This interval can be particularly prolonged in the community setting where, in the authors’ experience, the interval between the acknowledgment of pressure ulcer risk and the provision of a pressure-relieving mattress will normally be greater than 24 hours and more typically around 36 hours (Figure 1).

Clearly, any approach seeking to reduce pressure-related tissue injury — and ultimately pressure ulceration — needs to pay adequate attention to the early and accurate recognition of risk, in conjunction with the appropriate and timely provision of clinical interventions.

When a patient is at risk of pressure ulceration, the use of interventions such as the localised application of dermal pads that can be implemented immediately to help mitigate pressure ulcer risk (following appropriate staff training) would appear to have a useful role to play, allowing instant action to be taken as soon as the risk is identified.

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BACKGROUND

During the latter months of 2013, a substantial increase was noted in the number of residential home patients with pressure ulcers being referred to the Basildon and Brentwood integrated community team for tissue viability input. Given the substantial impact on patients of pressure ulcer development, coupled with the significant financial burden to health services associated with their management, it was essential that action was taken to address this growing incidence.

The increase of pressure ulcers locally also highlighted the need for ongoing improvements in care standards within these homes, with a specific focus on the prevention of pressure ulcers and pressure-related injuries among residents. In response, a project was developed with the aim of enhancing the standards of care in residential homes. The project involved collaboration between the tissue viability service, Basildon integrated community team and a medical equipment company (Smith & Nephew).

AIM

The project aim was to implement a programme of training and education for residential home staff focused on pressure ulcer prevention. In doing so, the intention was to improve the quality of care and thereby reduce pressure ulcer incidence within a group of 22 residential homes in south west Essex.

METHOD

The project involved the implementation of the SSKIN Bundle model (the SSKIN Bundle is a five-step model for pressure ulcer prevention — search ‘SSKIN Bundle’ at www.bapen.org.uk), coupled with appropriate targeted use of Aderma™ (Smith & Nephew) dermal pads and Proshield™ (H&R Healthcare).

Proshield Plus and Proshield Foam are pH-balanced skin cleansers indicated for intact and injured skin associated with incontinence and for total body washing. Aderma is a range of dermal gel pads that redistribute pressure to protect critical areas. It is typically used on bony areas to help prevent skin damage from pressure, most notably the heel and sacrum (Figure 2).

For each of the 22 residential homes involved in the project, pressure ulcer incidence data were collated and analysed for a six-month period before the project began. The same data were collated and analysed in all of the homes over the six-month period immediately after the project.
ADERMA Dermal Pad
Designed to help prevent pressure ulcers

- Recommended for areas at risk, recently healed pressure ulcers, or on non-blanching erythema
- ADERMA redistributes pressure to relieve critical areas
- Can be washed and reused by the same patient

Available on prescription
www.aderma.info

Reference
The comparison of these two sets of data allowed a comparison between the impact of the project implementation and any associated change in practice.

Pressure ulcers are considered a nurse-sensitive indicator of quality as the development of pressure damage is often multifactorial and related to the breakdown of individual elements of nursing care (Savitz et al, 2014).

The NHS East of England and Midlands SSKIN Bundle (NHS East and Midlands, 2015) (Figure 3) was chosen as the educational tool and an action plan was developed within the homes to address other issues which could also be related to the SSKIN Bundle. Preparatory meetings were held between the integrated community team, Smith & Nephew and the tissue viability team to establish role boundaries and agree actions for the project delivery.

The tissue viability team supervised the project and supported the integrated community team with the implementation and ongoing local support. Smith & Nephew delivered an educational package focused on the SSKIN Bundle and provided training on the appropriate use of the dermal pads for the care staff in each of the residential homes.

Immediately after this training, a ‘stock-box’ was issued to each residential home. This contained initial supplies of dermal pads for staff to use where risk assessment identified the need for immediate off-loading or barrier protection.

### RESULTS

Within the 22 residential homes a total of 43 pressure ulcers were recorded across all categories during the course of the six-month baseline data-collection period (Table 2).

There was a total of three category four, 14 category three and 26 category two pressure ulcers. All of these were considered avoidable at the time as no documentation to the contrary was evident in the patient notes.

In the six-month comparator period following the educational initiative, a total of two avoidable

Table 1 gives a detailed description of the products contained within each of the stock boxes and the unit cost of each item (NHS Business Services Authority, 2015).

During this process the integrated community team developed relationships with management and nursing staff at the residential homes and introduced the concept of working together using evidence-based tools to improve quality of care.

Following these educational sessions, all residents were risk-assessed in relation to pressure ulcer development by the integrated community team and an individualised care plan for prevention was developed.

The SSKIN Bundle was then completed by the nursing staff on each shift and reviewed by the integrated community team where necessary, for example if any deterioration was noted, or concerns raised by the nursing staff.

Table 1: Contents of stock boxes issued to the residential homes and associated unit costs (NHS Business Services Authority, 2015)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit cost</th>
<th>Material cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aderma Sacral Pad</td>
<td>Eight</td>
<td>£16.87</td>
<td>£134.96</td>
</tr>
<tr>
<td>Aderma Large Heel</td>
<td>Six</td>
<td>£17.12</td>
<td>£102.72</td>
</tr>
<tr>
<td>Aderma Small Heel</td>
<td>Six</td>
<td>£15.02</td>
<td>£90.12</td>
</tr>
<tr>
<td>Aderma Strip (30 x 5 x 0.3cm)</td>
<td>Eight</td>
<td>£6.45</td>
<td>£51.60</td>
</tr>
<tr>
<td>Aderma Small Sheet (10 x 10 x 1.2cm)</td>
<td>Six</td>
<td>£12.89</td>
<td>£77.34</td>
</tr>
<tr>
<td>Aderma Large Sheet (20 x 20 x 0.3cm)</td>
<td>Two</td>
<td>£17.16</td>
<td>£34.32</td>
</tr>
<tr>
<td>Proshield Foam &amp; Spray (235ml)</td>
<td>20</td>
<td>£6.60</td>
<td>£132.00</td>
</tr>
<tr>
<td>Proshield Plus cream (115g)</td>
<td>20</td>
<td>£9.83</td>
<td>£196.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cost per home</strong></td>
<td></td>
<td><strong>£819.66</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Baseline avoidable pressure ulcer incidence data collated over a six-month period in residential homes before the collaborative pressure ulcer initiative

<table>
<thead>
<tr>
<th>Number of pressure ulcers in each category across the 22 homes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category two</td>
</tr>
<tr>
<td>Category three</td>
</tr>
<tr>
<td>Category four</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
pressure ulcers were recorded, comprising one category three and one category four ulcer. This represents a reduction in the total number of avoidable pressure ulcers of 95.3%. The most dramatic reduction was achieved in category two ulcers, with a 100% reduction being achieved from a high of 26 at baseline before the initiative, to zero during the six-month period following the project (Tables 2 and 3).

Anecdotal feedback from the safeguarding team showed a reduction in safeguarding concerns following the implementation of the project. After a recent inspection, the Care Quality Commission (CQC) also commented upon the positive influence that the project has had within the homes and cited it as an example of good practice. Alongside other publicly available information, the residential homes adopted the use of the pressure ulcer Safety Cross, becoming confident in displaying this as an indicator of the quality of care provided to residents.

Despite a subsequent outbreak of diarrhoea and vomiting in one of the homes, no pressure ulcers or moisture lesions had developed, again highlighting the increase in quality of care. When such outbreaks had occurred in residential homes in the past, they had typically been associated with an increased incidence of pressure ulceration and moisture lesions.

During the project, the integrated community team developed relationships with management and nursing staff at the residential homes and introduced the concept of team-working and the use of evidence-based tools to improve quality of care.

**DISCUSSION**

A cost analysis was performed to examine the treatment cost of pressure ulcers before and after the initiative, as well as the estimated cost of delivering the initiative itself (Table 4). The cost associated with pressure ulcers was calculated using published reference costs for the management of pressure ulcers (Table 5), which were applied to the numbers of pressure ulcers recorded before and after the educational initiative (Tables 2 and 3).

The cost of delivering the project was based on the material cost of supplying the stock boxes (Table 1) and the cost of specialist nursing time required to deliver the required training and education, across all 22 of the residential homes.

The analysis (Table 4) indicates that the reduction in pressure ulcer incidence following the educational initiative is associated with a saving to the health economy of approximately £200,000, compared to the costs that would be incurred as a result of treating the number of pressure ulcers recorded before the initiative. The direct cost saving to a single residential home will of course be less than this figure as this represents a health economy-wide saving including such costs as hospitalisation etc.

The analysis in Table 4 shows that the material and nursing training costs associated with the initiative

![Figure 3](https://example.com/figure3.png)

**Five-minute test**

Answer the following questions about this article, either to test the new knowledge you have gained or to form part of your ongoing practice development portfolio.

1. What types of wounds are most commonly found in residential homes?
2. Which is more severe — a category one or a category four pressure ulcer?
3. Why might pressure ulcers be more common in residential care?
4. Why would you choose ‘off-loading’ as a technique in a person in danger of pressure ulceration?
are modest at £23,973, in comparison to the reduction in pressure ulcer treatment cost arising following the project intervention (£201,996).

As a result, when the costs of the stock-boxes and the nursing time required to deliver training sessions are considered, the cost savings associated with this preventative approach are sizeable. Indeed, the total intervention cost of £23,973 represents just 9.9% of the pre-intervention cost of pressure ulcer treatment, yet this intervention investment was followed by a 93.4% reduction in calculated pressure ulcer treatment costs (from £241,985 to £16,016).

Even taking into account the use of the intervention materials and the nursing time costs involved (£23,973), the total calculated cost saving of £201,996 represents a 83.5% reduction in overall calculated costs.

### Joint working

During the implementation of the project, much was learnt about joint working across specialities and differing levels of knowledge among staff, which helped to develop greater uniformity in standards of care.

Despite the initial increase in workload, the enthusiasm and commitment of the integrated community team staff responsible for the residential homes was maintained throughout and was a critical element in the success of the project. The positivity of management and nursing staff in the participating residential homes also contributed significantly to the project’s success.

The results of this project have been very positive and demonstrate a model that strives to achieve zero tolerance towards the development of avoidable pressure ulcers that should be repeatable elsewhere. The structured approach of combining the SSKIN Bundle and training in the dermal pads ensured that all staff used them appropriately to reduce the risk of pressure damage.

The success of the project has been communicated across the trust and has prompted much discussion about preventing pressure ulcers and improving care standards. Standards have remained high and the relationship between the community nurses and residential home staff has developed into one of sharing care for patients.

Reflection upon the project and the outcomes has led the authors to conclude that the system-wide approach was critical to successful outcomes. Thus, although nursing staff education was an important element of the project and vital in helping staff to identify patients at risk of pressure damage, an essential adjunct to this was easy access to the dermal pads and skin care products that the staff needed if they were to act immediately when at-risk patients were identified.

Provision of appropriate equipment can be difficult to achieve due to the associated costs and the initial investment necessary. Obtaining the funding required to allow widespread easy access to pressure ulcer prevention materials often requires breaking down budget boundaries between different areas and services, which can prove difficult.

However, as the cost analysis revealed (Table 4), the initial investment in prevention measures

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**Table 4: Cost analysis: pressure ulcer treatment costs and project intervention costs**

<table>
<thead>
<tr>
<th>Treatment costs</th>
<th>Pressure ulcer category</th>
<th>Reference cost</th>
<th>Pressure ulcer incidence</th>
<th>Cost</th>
<th>Cost per hour of nurse specialist time (Curtis, 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Category two</td>
<td>£4,399</td>
<td>26</td>
<td>£114,374</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category three</td>
<td>£7,233</td>
<td>14</td>
<td>£101,262</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category four</td>
<td>£8,783</td>
<td>3</td>
<td>£26,349</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td></td>
<td></td>
<td>£241,985</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Reference cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aderma and Proshield stock-box</td>
<td>£819.66</td>
<td>N/A</td>
<td>£0</td>
<td>22</td>
<td>£18,033</td>
</tr>
<tr>
<td>Training and education</td>
<td>£270.00</td>
<td>N/A</td>
<td>£0</td>
<td>22</td>
<td>£23,973</td>
</tr>
<tr>
<td>Specialist nurse time per three-hour training session</td>
<td>£90.00</td>
<td>N/A</td>
<td>£0</td>
<td>22</td>
<td>£90.00</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td></td>
<td>£0</td>
<td>22</td>
<td>£23,973</td>
</tr>
<tr>
<td>Total costs</td>
<td></td>
<td></td>
<td>£241,985</td>
<td></td>
<td>£201,996</td>
</tr>
</tbody>
</table>

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**Table 5: Reference costs for the treatment of pressure ulcers by category and specialist nurse time**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure ulcer treatment costs (Dealey et al, 2012)</td>
<td>£4,399</td>
</tr>
<tr>
<td>Category three</td>
<td>£7,233</td>
</tr>
<tr>
<td>Category four</td>
<td>£8,783</td>
</tr>
<tr>
<td>Cost per hour of nurse specialist time (Curtis, 2013)</td>
<td>£90.00</td>
</tr>
</tbody>
</table>
was more than offset by the subsequent savings in remedial pressure ulcer management costs.

**Spreading the word**

The success of the project has led to the local clinical commissioning groups (CCGs) arranging an increased roll-out of the project, combining the SSKIN Bundle training, dermal pad training and dietetics support, to every nursing home in the two localities over the next two years.

To date, a further 20 residential homes have been included in the roll-out, encompassing a total of 1,000 beds. Following the implementation phase of the project, the team have continued to monitor outcomes closely.

Across the residential homes involved in the initial project, the reduction in pressure ulcer incidence associated with the project have broadly been maintained, with the greatest consistency being achieved where local health teams have most fully embraced the concept of working with social care teams.

Continued data analysis has led to the identification of a specific issue regarding the development of pressure ulcers on patients’ heels, which contributed to the bulk of newly presenting preventable pressure ulcers arising within the residential homes following the project.

This has prompted the development of a standard operating procedure for the prevention and management of heel pressure ulcers and heels at risk of pressure damage. A targeted ‘HEELS UP’ campaign has also been initiated to address this specific issue (Norris and Bielby, 2014).

**CONCLUSION**

This collaborative project illustrated how a rounded approach involving appropriate staff training, coupled with improved access to pressure ulcer prevention materials helped to reduce pressure ulcer incidence.

The project showed the benefits of a dual approach in which staff were not only aided in the timely and accurate recognition of pressure ulcer risk, but also in taking subsequent action to quickly address the risk, with local measures such as dermal pads and skin-care products.

**Key outcomes of the project included:**

- A reduction in pressure ulcer development was recorded following SSKIN Bundle education and the introduction of targeted use of dermal pads
- Carers identified a delay between district nurse referral and the provision of off-loading devices. During this interval, pressure ulcers did develop in some cases. This emphasised the vital role of the supply of stock-boxes, which enabled staff to deal with any risk of pressure ulceration immediately without any delay
- On the basis of this project, the local CCG has confirmed funding for the wider roll-out of the project as a two-year initiative within local nursing homes, with the aim of achieving zero tolerance of pressure ulcer development.

This project has also illustrated how a structured approach to collaborative working between clinicians and the healthcare industry can be highly effective. It provides an example of how industry can help support clinicians in meeting the challenge of reducing pressure ulcer occurrence and ultimately improve the quality of care for patients.

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**REFERENCES**


**KEY POINTS**

- A comprehensive approach to pressure ulcer prevention was taken encompassing education and the targeted use of preventative measures such as dermal pads.
- The project employed a collaborative approach involving close working between clinical staff and industry.
- Following implementation of the new approach to prevention, a 95.3% reduction in the number of avoidable pressure ulcers was observed across the 22 residential homes.
- A cost analysis indicates that the reduction in pressure ulcer incidence following the educational initiative is associated with a saving to the health economy of approximately £200,000.
- A ‘stock-box’ containing supplies of dermal pads and skin care products was given to the residential home, meaning that staff could begin using these as soon as a risk assessment identified a vulnerable patient.
- The aim of the study was to improve quality of care within residential homes, specifically in relation to pressure ulcer prevention.