Wounds are a growing challenge

Wounds have been called ‘the silent epidemic’.

In a typical hospital setting today, between 25% and 40% of beds will be occupied by patients with wounds. In the community, management of wounds takes up over half of all resources.¹

The challenge of wounds has crept up insidiously on healthcare systems for some years now. Why?

Demographics are part of it: chronic wounds are strongly correlated with age, and in developed world, average life expectancy is now almost 80, and rising.²

Disease states such as diabetes have a surprisingly high association with wounds. In Europe, diabetes already affects 20.2 million people, a figure predicted to rise by 37% over the next two decades.³

Surgical interventions, which do so much to improve patients’ lives, of course produce wounds, and these, too, are vulnerable, with an average of 4% becoming infected.¹

The challenge is exacerbated by the relatively low levels of specific wound training in many healthcare settings. The result is a debilitating personal cost to the patient, and a draining economic cost to the system.

It cannot continue like this. And it needn’t.
DISCOMFORT
EMBARRASSMENT
PAIN
INFECTION
DEATH
PROLONGED HOSPITAL STAY
ODOUR
ANXIETY
CHRONIC MORBIDITY
RECURRING
AMPUTATION
REDUCED QOL
DISCOMFORT
INFECTION
DEATH
EMBARRASSMENT
PROLONGED HOSPITAL STAY
ODOUR
ANXIETY
CHRONIC MORBIDITY
The human cost of wounds

The human cost of wounds is measured in pain, distress, embarrassment, anxiety, prolonged hospital stays, chronic morbidity or even death. Much of this suffering is preventable.

A stage IV pressure ulcer cuts to the bone, causes considerable pain, and can add three months or longer to hospital stays. Yet around 60%-80% of all pressure ulcers are hospital acquired and therefore preventable, at a conservative estimate.4

Wound infection increases exudate to distressing levels, causes inflammation, pain and odour, and can result in further surgical interventions for debridement or excision. Yet modern dressings and best-practice techniques can reduce wound infection from its current, unacceptably high base.

Much can be done to prevent diabetic foot ulceration, yet annual incidence for patients with diabetes in the US continues at 2-3%.5 Studies show that as many as 57% of these patients will suffer the drastic measure of amputation.1

Contrary to common belief, the tools and techniques for the reduction of the human burden of wounds do not imply extra costs to the system; overall, as we shall see, they reduce it.
The breakdown of wound costs in the acute setting:

- **Materials costs**: 15-20%
- **Nurse time**: 30-35%
- **Hospitalisation**: >50%
The economic cost of wounds

The economic cost of wounds is measured in literally billions of dollars, euros and pounds. If health system managers are oblivious to that cost, it is because so much of it is ‘hidden’ - not apparent in the cost of materials.

Current estimates indicate that wounds account for almost 4% of total health system costs, and that this proportion is increasing.6

Hospitalisation itself is the main cost driver for woundcare for the system. Bed-days are typically evaluated at €250 per day.¹ Patients cannot leave until healing is well advanced, so any delay in wound closure has significant cost impact in bed-days and other resources within the health system.

Nursing time is another factor that far outweighs the cost of materials. This is an important resource that could be deployed in other ways to benefit current patients, or used to increase the ability of the system to treat more patients.

With best practice and optimum materials, all these costs can be significantly reduced, as the following pages highlight.
Factors in the cost of dressing changes

- Dressings
- Nursing time
- Other materials
- Travel (Community nurses)
Reducing hidden cost: dressing changes

Do not under-estimate the resources involved in the apparently simple act of changing dressings. A study in Uppsala, Sweden, showed that in a community of 288,000 people, with a typical wound prevalence of 2.4/1000, the equivalent 57 full-time nurses were required for dressing changes alone.7

In the acute setting, dressing-change frequency is a big factor in the deployment of nursing resource. Choice of dressing is therefore a vital consideration, and one that should not be based on the unit cost alone.

Dressings that require fewer changes produce patient benefits, since they reduce trauma; clinical benefits, since the wound is exposed to contaminants less frequently; and economic benefits, as the following table shows, even where the materials cost is higher.8

<table>
<thead>
<tr>
<th></th>
<th>ALLEVYN Foam Dressing</th>
<th>Traditional (gauze) Dressing</th>
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<tbody>
<tr>
<td>Material cost per change</td>
<td>$9.83</td>
<td>$6.36</td>
</tr>
<tr>
<td>Nurse cost per change</td>
<td>$9.18</td>
<td>$9.18</td>
</tr>
<tr>
<td>Total cost per change</td>
<td>$19.01</td>
<td>$15.54</td>
</tr>
<tr>
<td>Frequency of dressing change (per week)</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Material cost per week</td>
<td>$19.66</td>
<td>$44.52</td>
</tr>
<tr>
<td>Nurse cost per week</td>
<td>$18.36</td>
<td>$64.26</td>
</tr>
<tr>
<td>Total cost per week</td>
<td>$38.02</td>
<td>$108.78</td>
</tr>
<tr>
<td>Cost savings per week</td>
<td>$85.26</td>
<td>$85.26</td>
</tr>
<tr>
<td>Material cost</td>
<td>$21.00</td>
<td>$64.26</td>
</tr>
<tr>
<td>Nurse cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Smith & Nephew pioneered the development of low-change, foam dressings and associated protocols with its ALLEVYN® range. Today, the ALLEVYN range has been developed with innovations for specific patient types, but its ability to manage exudate for up to 7 days without change is still its core clinical benefit.9
Reducing hidden cost: infection

Infected wounds are a serious health care issue, adding significantly to overall system costs.

Aside from the duty of care to the patient, systems have a strong economic imperative for taking active steps to reduce the incidence of hospital-acquired infection, as the table shows:¹

<table>
<thead>
<tr>
<th>EUROPEAN DATA</th>
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<tbody>
<tr>
<td>Surgical infection affects 30-40 patients per 1000 operations⁶</td>
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<tr>
<td>Mean additional length of stay = 11 days</td>
</tr>
<tr>
<td>Mean cost = €5,800 per case</td>
</tr>
<tr>
<td>Attributable mortality rate = 5%</td>
</tr>
</tbody>
</table>

Based on this data, a hospital performing 10,000 operations annually can expect 300-400 infections, resulting in 3,300-4,400 excess bed-days, producing €1.74m-€2.32m in excess costs and resulting in 15-20 infection-attributable deaths.

One of the simplest ways to reduce surgical site infection is through the use of high-quality silver post-op dressings. The increased materials costs are miniscule compared to the costs of infection.

*In-vitro* studies have shown Smith & Nephew’s ACTICOAT® to be highly effective silver dressing, proven to kill over 150 pathogens in as little as 30 minutes.¹⁰
In March 2005, the Niagara community health care provider implemented a radical reorganisation of wound management practices designed to ensure that available resources, particularly nurse time, were being used in the most efficient way. An evaluation of the impact of the reorganisation has shown improvements in clinical practice and better patient outcomes. The use of traditional wound care products reduced from 75% in 2005 to 20% in 2007 in line with best practice recommendations, and frequency of daily dressing changes reduced from 48% in 2005 to 15% in 2007. In a comparison of patients treated in 2005 and 2006, average time to healing was 51.5 weeks in 2005 compared with 20.9 weeks in 2006. Total treatment cost was lower in 2006 by $10,700 (75%) per patient. Overall, improvements in wound management practice led to a net saving of $3-8 million in the Niagara wound care budget.¹¹

<table>
<thead>
<tr>
<th>Matched samples of patients created in 2005 and 2006</th>
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<tbody>
<tr>
<td>2005 (50 patients)</td>
</tr>
<tr>
<td>Average weeks to heal</td>
</tr>
<tr>
<td>Average frequency of dressing change (per week)</td>
</tr>
<tr>
<td>Total dressing changes to healing</td>
</tr>
<tr>
<td>Nurse cost per dressing change ($)</td>
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<tr>
<td>Total nurse cost per patient ($)</td>
</tr>
<tr>
<td>Material cost per dressing change ($)</td>
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<tr>
<td>Total material cost per patient ($)</td>
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<td>Total cost per patient ($)</td>
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Reducing cost by reducing time to heal

It is natural for managers to seek health care materials that perform to an acceptable, ‘good enough’, standard if they reduce the overall cost of materials to the system.

The difficulty comes in evaluating whether the reduction in materials costs is cancelled out, or even outweighed, by reduced clinical performance compared with that achieved by the most advanced (and usually more expensive) products.

A community study in Niagara, Canada, showed how moving from traditional, ‘good enough’ dressings, to advanced dressings, and simultaneously instigating a programme of best-practice techniques, significantly reduced healing times and overall costs to the system - even though materials costs rose.
Smith & Nephew has a history of developing imaginative solutions that advance the science of healing. Today, that innovative spirit continues to gather pace.

**ALLEVYN°**

1987: The first-ever foam dressing

**TIME°**

2000: The pioneering principle of wound management

**ACTICOAT°**

2001: The innovation of nanocrystalline, for silver release

**VERSAJET°**

2004: The breakthrough of aqua debridement
Imaginative solutions to wound care problems

At Smith & Nephew we believe it is time to reduce the human and economic cost of wounds. Everything we do is aimed at helping clinicians and health system managers realise this objective.

We offer a full range of effective wound care products, combined with a deep understanding of best-practice techniques for the prevention and healing of wounds.

Building on this knowledge, we seek imaginative solutions that improve wound outcomes for patients and at the same time conserve resources for healthcare systems.

OPSITE® POST-OP Visible

2007: The only absorbent post-op dressing that lets clinicians see the wound

PICO°

2011: The first pocket-sized, single-use NPWT system
For patients. For budgets. For today.

If society fails to meet its growing healthcare costs, future generations will pick up the bill. We cannot let that happen.
References

2. The World Bank, World Development Indicators (WDI) April 2011


10. Smith & Nephew Data on file (DOF) (2007) reports showing *in-vitro* evidence of effectiveness against a broad range of wound pathogens; sustained antimicrobial activity up to 7 days; effective barrier against bacteria
