Managing the wound with Hydration Response® Technology

Advanced dressing technology offers contemporary approaches to wound management that can deliver benefits in quality of life for the individual, together with cost-savings to the healthcare provider. The wide range of wound dressings available present challenges in choice; dressings that reduce pain, prevent cross-infection, provide cost-effective treatment and improve healing. At the same time, optimal performance is dependent on wound characteristics and knowledge of the wound healing process. Managing the wound environment means that the wound should be free from heavy exudate, necrotic tissue and pathogens, and remain moist and warm.

Hydration Response® Technology
A recent publication by Evans (2010) shows how sorbion sachet S utilises the concept of Hydration Response® Technology (HRT), specifically its value in managing infection in a recalcitrant pressure ulcer.

Hydration Response Technology was created specifically to meet the challenge of wounds which produce moderate to high levels of exudate. The HRT dressing product, sorbion sachet S (sorbion Aktiengesellschaft, Senden, Germany) is a combination of physically modified cellulose fibres and gelling agents, which absorb and retain large quantities of wound exudate and corrosive agents which are damaging to the wound (Kramer and Maassen, 2009). Dehydration of the wound bed, or saturation of the periwound skin is thus avoided. At the same time, maintenance of the hydro-balanced environment is accomplished (Doughty, 2005).

Clinical performance and related evidence
Hydration Response Technology using sorbion sachet S enables effective wound bed preparation and can lead to a significant reduction in overall treatment costs (Romanelli et al. 2009; Evans, 2010), such as a reduction in the frequency of dressing changes (Chadwick, 2008; Cutting, 2008) and by enabling rapid WBP (Schultz et al 2004). Efficient exudate management extends beyond mere absorption and includes (Armitage and Macaskill, 2009; Cutting, 2009; Romanelli et al. 2009; Evans, 2010):
- Extended dressing wear time (Chadwick, 2006; Cutting et al, 2008; Romanelli et al. 2009)
- Excellent fluid retention properties (Chadwick, 2006; Cutting et al, 2008; Romanelli et al. 2009)
- Dressing form stability ensuring wound edge protection
- Matrix metalloproteinases (MMPs) modulation avoiding extracellular matrix (ECM) degradation
- Bacterial sequestration (immobilisation), lowering the bacterial burden
- Maintenance of hydro-balance, avoiding too wet or too dry an interface even under compression
- Debridement of moist, devitalised tissue on the wound surface and improving quality of life for patients (Chadwick, 2006; Romanelli et al, 2009) by removing odour and preventing leakage of exudate (Chadwick, 2008).

The clinical performance of a HRT dressing (sorbion sachet S) is illustrated in a recently completed case report.

Case report
Mr S, an elderly, obese male patient was admitted for assessment and management of bilateral lateral malleolar leg ulcers. The patient's legs were grossly oedematous with virtually circumferential, severe, bilateral, sloughy,
malodorous, maceration of the peri-
wound skin (Figures 1–3).

In the first few days following
admission, the difficulties with managing
these ulcerated limbs became clear.
Topical antiseptics, chloromycetin
ointment together with a myriad of
dressings that included gauze, foams,
non-adherent pads, large absorbent pads
with zinc-impregnated bandages were
all tried with little or no success. The
production of exudate was unrelenting
so that dressings and bed linen required
at least daily changes and sometimes
night changes as well. Dressing change
took more than an hour each time to
complete, often requiring the assistance
of a second nurse.

Following an assisted shower, Mr
S’s legs were dressed with sorbion
sachet S (from below knees to toes)
and retained with crepe bandages. To
avoid compromising the multi-level
occlusion in his lower limbs (previously
diagnosed), compression bandaging
was not used. Interdigital spaces were
dressed with gauze. Bed rest was
‘prescribed’ and the patient was placed
on an alternating pressure air mattress
to prevent additional pressure ulceration.
Mr S had already sustained bilateral heel
ulcers before admission. Although he was
able to mobilise with assistance, he was
unable to roll from side to side in bed
because of his obesity. Mr S was allowed
to sit out of bed for meals and to visit
the toilet. The patient was malnourished;
serum albumin was low at 27g/L (normal
range 33–48g/L), and he was anaemic
(haemoglobin 118g/L, normal range
130–180g/L). Following assessment
by a dietician, high protein drinks were
provided. No antimicrobial agents (topical
or systemic) were administered following
admission, as these had been ineffective.

Following discussion with the general
practitioner, a decision was made to try
the HRT sorbion sachet S dressings and
review the patient every day.

On day one the most immediate and
startling observation was the absence
of malodour in the room. There was no
sign of strikethrough on the bandages,
thus indicating dressing change was
not required.

Forty-eight hours after the
initial dressing application (day two),
strikethrough was visible on the
bandages of the left lower leg (Figure 4),
so the bandages and dressings
were removed.

The slough (biofilm) that had been
clearly visible on day 0 had considerably
reduced (Figure 5). The exudate had
been efficiently absorbed and retained
within the dressings. The periwound skin
maceration was noticeably reduced and
appeared less red and inflamed.

It is clear that a significant change
had taken place in the overall condition
of the lower limb ulceration after 48
hours: slough had diminished without
the need for sharp debridement; wound
exudate had been absorbed into the
dressings and retained; malodour
was not present; maceration had
decreased and ulcer healing had begun;
epithelialisation was observed and
oedema was visibly reduced.

By day four the slough from the lateral
malleolar ulcers had almost disappeared
and the black necrotic cap of the heel
pressure ulcer simply came off with the
sorbion sachet S dressing (Figure 6).

Within 14 days (Figure 7) the legs
had made such good progress that
sorbion sachet S dressings were no
longer required and alternative dressings
were applied. Observation of both legs
indicated reduced oedema.
Conclusions
Efficient exudate management is achievable in clinical practice if the relevant resources are utilised. Dressing performance should not only be judged by volume of exudate absorbed, but should also include fluid retention (Chadwick, 2008; Evans, 2010), dressing form stability (Chadwick, 2008), modulation of MMPs, management of bioburden (Schultz et al, 2004), continuing debridement and extended dressing wear time (Chadwick, 2008). The combined effect of these features will lead to improvements in patient quality of life and reduction in overall costs.

Sorbion sachet S is a wound dressing specifically designed to prepare the wound bed and to manage wound exudate. Hydration Response Technology offers a specialised and useful approach to exudate management and provides clinicians with the opportunity to reassess the need for sharp debridement and/or topical antiseptic agents. 

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References

Key points
- Efficient management of exudate is achievable in clinical practice if the relevant wound dressings are used.
- Exudate is absorbed and retained within the sorbion sachet S dressing, thus lowering the exposure of nursing staff to the wound, an important infection control consideration.
- Dressing performance, volume of exudate absorbed, management of bioburden, continuing debridement and extended dressing wear time improved this patient’s quality of life.
- Hydration Response® Technology offers a unique and extremely useful approach to exudate management.