The Advantages Of A Unit Dose Saline Irrigation Delivery Device In The Management Of Open Wounds

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Wound cleansing has long been regarded as an essential component of wound care. It is comprised of 3 elements.

**TECHNIQUE:** A 2005 Cochrane review found no evidence to support any one technique over another. In the wound care setting irrigation seems to be the most commonly used technique.

**SOLUTION:** Normal saline is the generally favored fluid as it is isotonic and less likely to interfere with the healing process.

**DEVICE:** Effective wound irrigation requires delivering a fluid with sufficient pressure to dislodge contaminants and debris without harming viable tissues.

Irrigation Pressure

Pressures less than 4psi have been shown to be ineffective for adequate wound cleansing.

Pressures greater that 15psi may cause trauma to the wound bed. The pressure at which the fluid is applied is dependent on the device used for delivery. Each option available has its own advantages and disadvantages.

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<th>Option</th>
<th>Advantage</th>
<th>Disadvantage</th>
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| Bottle and needle irrigation device | - Single syringe and bottle set delivers uniform pressure at tight distance  
                         - Only injectable or non-toxic solutions are used                  | - Requires very high pressure to effectively deliver fluid                  |
|                           | - Minimizes the risk of drawing or contaminating the wound               | - May require repeated injection of the same fluid                         |

**MEDICATION DELIVERY device**

- Injection of non-drug solutions is also possible
- Effective delivery is achieved over a wide range of psi

**Bottle Irrigation bottle**

- Readily available
- May be used for a variety of solutions
- Does not require specific training

**Tissue Irrigation bottle**

- Adjustable to deliver solution at an effective range of psi
- May be used for a variety of solutions

**Tissue Irrigation dispenser**

- Adjustable to deliver solution at an effective range of psi
- May be used for a variety of solutions

**Tissue Irrigation device**

- Adjustable to deliver solution at an effective range of psi
- May be used for a variety of solutions

- Uniform flow delivers effective irrigation
- Delivery is consistent and predictable

This unit dose saline container has the advantage of being easily warmed by carrying it in a close pocket or through hand holding by the clinician or patient.

Additional Benefit

We know that warming irrigation fluid increases patient comfort. In addition many studies indicate that it may have a positive effect on wound healing.

- Warming chronic wound fluid has been shown to prevent the inhibitory effect of chronic wound fluid on the growth of dermal fibroblasts
- Reduction in wound tissue temperature has been associated with decreases in neutrophil, fibroblast, and epithelial cell activity
- Low tissue temperature has been shown to slow wound healing by decreasing oxygen release
- A dressing change can drop the tissue temperature for up to 4 hours

**Medication Management Standards**

Standard MM.2.26—Medications are properly and safely stored

Element 5—All medications must be secured to prohibit access by unauthorized persons

The FDA has classified saline used for wound irrigation as a medical device and is not subject to medication management regulations. However, any saline that could be used for instillation into the body (for example through a PEG tube or in a trach) is considered a drug and therefore falls under the medication management rules and must be securely stored.

A unit dose saline packaged for wound irrigation only and FDA classified as a medical device allows for convenient storage and easy access without risking JCAHO citation

**JCAHO Concerns**

National Patient Safety Goals

NPSG 3 Improve the safety of using medications

3D—Label all medications, medication containers (e.g., syringes, medicine cups, basins), or other solutions on and off the sterile field in peripertative and other procedural settings.

Any solution transferred from the original packaging to another container must be labeled even if it is the only solution being used. At a minimum the label must contain the name of the solution, strength and volume (if not apparent from container). In addition, if the person administering the solution is not the person that transferred it from its original container the label must be visually and verbally verified by two qualified individuals.