Invia®

Negative Pressure Wound Therapy

Featuring Avance Foam Kits and Invia Gauze Dressing Kits

For Training Purposes Only
## Comparison to Today

<table>
<thead>
<tr>
<th>What is NOT Changing</th>
<th>What’s New</th>
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<tbody>
<tr>
<td>Medela Pumps</td>
<td>We have foam filler that meets or exceeds market standard</td>
</tr>
<tr>
<td>Indications, Warnings, Precautions of NPWT</td>
<td>Dressing Change time on Foam 48 to 72 hours but no less than 3 X weekly</td>
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<tr>
<td>Invia Gauze Kits, pressure recommendations, and dressing change times</td>
<td>If NPWT is interrupted with Foam filler dressing must be changed within 2 hours</td>
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<td></td>
<td>Pressure recommendation with Foam Kits is 120 mmHg or as directed by a physician</td>
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<td>Foam Kits come ESI tubing only</td>
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</table>
Avance Green Foam Kit Contents

- Wound dressing
  - Green Foam
- Transparent film
- ESI drain

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Avance Foam Indications for use

• Traumatic wounds
• Surgical, sternal, abdominal, extremity wounds
• Chronic wounds
  Pressure ulcers, DFUs, venous leg ulcers
• Partial – thickness burns
• Dehisced wounds
• Flaps & grafts
Avance Foam Contraindications

- Direct positioning of NPWT over exposed organs, large veins and arteries, tendons or nerves
- Malignant wounds
- Untreated osteomyelitis or malnutrition
- Non-enteric and unexplored fistula
- Wounds with necrotic tissue with eschar present
- Exposed vasculature or anastomotic vessel sites
Avance Foam Precautions

• NPWT should only be used by healthcare professionals trained in vacuum therapy and adhering to the IFU.

• Anticoagulants, platelet aggregation inhibitors, active bleeding or difficult wound haemostasis.

• Extra care for treating wounds in close proximity to organs or vessels.

• Irradiated or sutured blood vessels or organs.

• Patient sensitivity to components.
Avance Foam Precautions

• Sharp edges/bone fragments must be eliminated or covered by a wound contact layer

• In growth of tissue into filler may occur if dressing is not changed according to recommendations or patients condition

• Blockage of drain and tubing may occur if tubing is kinked

• Patient requires frequent supervision

• If patient has an ischemic condition extra monitoring of wound is required
In-vitro studies

M Malmsjö, Ingemansson R. Similar biological effects of green and black polyurethane foam in negative pressure wound therapy: green foam facilitates monitoring of wound status, bleeding and exudate.

Poster presented at EWMA, Geneva May 2010
Results: Wound contraction

- Wound contraction was slightly greater for foam (both MHC & V.A.C.) than for gauze.
- Percentage changes in wound surface area were similar.
Results: Granulation tissue formation

- Granulation tissue formation is slightly greater under foam than under gauze and in the presence of a wound contact layer (in this case Mepitel and Mepitel One)

- Degree of granulation tissue similar for both MHC Avance foam and V.A.C. Granufoam

Malin Malmsjö, MD, PhD (in press)
Results: Tissue in-growth

- Wound bed tissue grows into foam but not into gauze
- Reflected in findings of case studies showing gauze to be easier to remove
- Removal of AMD gauze does not disrupt the wound bed and may lessen patient pain during dressing changes.
- The presence of Mepitel¹ + Mepitel One² hinders in-growth and lessens the force needed for removal of foam in NPWT
Results: Pressure transduction

- Optimal pressure transduction with MHC Avance foam, KCI V.A.C. Granufoam, and gauze
- All three fillers were comparable
- When using Safetac technology (Mepitel and Mepitel One) wound bed pressures achieved were reduced

Malin Malmsjö, MD, PhD (in press)
Results: Microvascular blood flow in the wound edge

- Observations regarding blood flow were similar for MHC Avance foam and KCI V.A.C. Granufoam
- Gauze had slightly less pronounced blood flow effects, especially at 0.5 cm from the wound edge
- Increased blood flow facilitates oxygenation, nutrient supply and removal of waste products
- Decreased blood flow stimulates angiogenesis and granulation tissue formation
Benefit of Avance foam

- Avance Green foam allows monitoring of exudate and bleeding
- Avance has a higher tensile strength (24 psi) vs black polyurethane foam (17 psi)
Application Technique
Cleanse the wound and surrounding skin as per local protocol.

Dry the peri-wound skin.
Application of Wound Contact Layer

Protect fragile structures as required
- Cut or conform wound contact layer to fit the wound
- Place the contact layer into the wound, covering as much of the wound bed as possible, particularly fragile structures

- Assure removal of any contact layer upon each dressing change
- Do not place contact layer or gauze into tunneled wounds (see Channel Drain Technique)
Avance Foam Application

• Warning: DO NOT cut foam over wound site as fragments may fall into wound
• Remove any fragments from the foam edges to ensure that loose particles will not fall into the wound or be left in the wound after removal
• Cut the foam into an appropriate size corresponding with the dimensions of the wound to assure wound bed is filled sufficiently without over packing
• Gently place the foam into the wound cavity ensuring contact with all wound surfaces
• Do not overlap the foam onto intact skin.

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Avance Foam Application

Place the foam gently in the wound cavity.

Lift protection paper from green bar labeled 1 and apply film over wound filler, drain and out towards skin. Remove the transparent carrier from green bar labeled 2, tear off handles.

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Cut a hole in the film <1cm in diameter.

Remove the release film of the external drain and apply it directly over the hole cut in the film. Press gently to ensure good fixation.
Avance Foam Application

Once the negative pressure is applied, the dressing will have a "raisin-like" appearance and be firm to touch.
Bridging Technique

1) Cleanse wound, cut and apply foam per basic technique

2) Apply transparent film over wound site, bridging site, and relocation site

3) Cut 1 cm hole in transparent film over wound

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4) Cut a 1 in. width piece of foam at an appropriate length to reach relocation area over the foundational film (may place end to end touching for additional length) and cut small circular foam piece and place at the end over foundational transparent film over bridging site and relocation site. May place foam touching end to end to reach relocation site.

5) Cut 1 cm hole in transparent film over wound, and place ESI drain over hole

6) Cover all with transparent film dressing and anchor drain tubing as desired

7) Connect drain to pump
Bridging Technique

- Dressing will have a “raisin” like appearance under pressure with a good seal.
Precautions with Foam Fillers

**Note:**
- If necessary the foam can be cut in half to make it thinner or stacked to double thickness depending on wound depth.
- Ensure foam-to-foam contact between all pieces of foam for even distribution of negative pressure (don’t leave gaps)

**Warning Important Note:**
- If more than one piece of foam is used, always count the total number of pieces used in the dressing and document in the patient’s notes.
- Do not place foam into unexplored or blind tunnels or non-enteric fistulas.
- Do not over pack foam into any area of the wound, as this may maintain the wound cavity, damage tissue, hinder exudate removal or hinder delivery of negative pressure.
## Foam vs Gauze Kits

<table>
<thead>
<tr>
<th>Foam Kits</th>
<th>Gauze Kits</th>
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<tbody>
<tr>
<td>Customer experience</td>
<td>Economical Choice</td>
</tr>
<tr>
<td>Customer or Patient Preference</td>
<td>Economical Patient Comfort with contact layer</td>
</tr>
<tr>
<td>Meet competitive threat</td>
<td>Tunneling Wounds requiring channel drain</td>
</tr>
<tr>
<td>Increased Granulation Response</td>
<td>Tissue ingrowth is not desired</td>
</tr>
<tr>
<td>Increased Wound Contraction</td>
<td>Ease of application</td>
</tr>
<tr>
<td>Tissue Ingrowth is desired</td>
<td>No disruption of wound bed tissue</td>
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Differences in Wound Appearance on Various Interfaces

Non Gauze, Non Foam Alternative

Foam

Mepitel

For Training Purposes Contact Layer with gauze
Key Points Summary

• Animal research shows Avance Foam is equal to market leading foam in pressure transduction, wound contraction, and wound perfusion

• Avance Green foam facilitates monitoring of wound status, bleeding and exudate

• Avance Green foam has a higher tensile strength than black polyurethane foam – Avance foam (24 psi) vs. Black Polyurethane foam (17 psi)

• If using a contact layer interface it may hinder tissue in-growth and lessens the force needed for removal of foam in NPWT providing patient comfort

• Offering choice in NPWT with foam or gauze dressings with multiple drain options

• Percentage changes in wound surface area are similar regardless of using foam or gauze as wound filler
Questions?