

Avance® Clinician's Guidelines



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Notice to Healthcare Providers

This copy supersedes any previous revision. For revision level and contact information, refer to the appendix section.

These guidelines are intended for use with the Avance® Negative Pressure Wound Therapy (NPWT) System (Mölnlycke Health Care US, LLC, Norcross, Georgia 30092). The guidelines are to assist healthcare providers to institute NPWT treatment or to incorporate NPWT treatment into already established wound-specific protocols of care for the patients they treat. The guidelines are not intended as a guarantee of performance or clinical outcome of NPWT.

Be advised that Federal (U.S.A.) law restricts these devices to sale/rental by prescription from a physician.

As with any medical treatment intervention, one should consult with the patient's physician for specific instructions regarding treatment with this system. In the event of a medical emergency, call 911 or the local emergency telephone number. Additionally, diligent effort should be made to contact the prescribing physician. If you have any questions or concerns about operation or use of the Avance® NPWT System, contact your local Mölnlycke representative or call 1-800-780-1228. Dressing kits are sterile packaged, indicated for single use only, once opened the items are considered contaminated and therefore not reusable. Physician directed application may be prescribed for sterile or aseptic technique as this is dependent on the care setting and/or the wound state/condition.

This document has been developed to provide the most current information to assist clinicians in using the Avance® NPWT System in specific clinical circumstances. Mölnlycke Health Care has made every effort to ensure the accuracy of the information contained in these guidelines. However, this does not diminish the requirement to exercise clinical judgment, and the company cannot accept any responsibility for the use of the information in clinical practice. All products referred to in the guidelines should be used according to the recommendations of the manufacturer.

The contents of this document have been reviewed by Mölnlycke Health Care US, LLC.

Avance® NPWT System is an advanced wound therapy product using a subatmospheric pressure device and specialized dressing applications in the Mölnlycke wound management division. This type of advanced wound therapy is designed for 24 hour/7 day a week utilization or as prescribed by a physician. The Avance® NPWT System includes the Avance® Max Pump, the Avance® Flex Pump, reticulated polyester/polyurethane green foam, if prescribed-antimicrobial (Polyhexamethylene Biguanide -PHMB) gauze with channel or flat drain, Avance® ViewPad™, canister, Avance® Tubing, Avance® Film and Avance® Film with Safetac® technology. It has been developed as a flexible and easy-to-use treatment that helps to promote wound healing, including drainage and removal of infectious material or other fluids, under the influence of change to continuous and/or intermittent negative pressure. The Avance® Pumps are lightweight, giving patients greater mobility either in hospital or at home. It can be used with a choice of dressing kits, depending on the wound and patient's needs. Avance® is the only NPWT System that offers products with Safetac® technology, a proprietary technology clinically proven to minimize dressing-related pain and trauma. These unique products include Avance® Film with Safetac® technology, Mepitel® and Mepiseal®. Avance® NPWT System is designed to maximize the benefits of NPWT by minimizing the unnecessary patient suffering.

Introduction:

Negative Pressure Wound Therapy (NPWT)

Negative Pressure Wound Therapy (NPWT) is the application of subatmospheric pressure within a semi-occlusive wound dressing at a prescribed level as defined by Argenta and Morykwas in their research¹. There have been scientific based changes to the device and application of NPWT through the years.

NPWT is now an established method of treating a variety of different wound types. The published research evidence appears to suggest that NPWT has a number of clinical effects which aid in promoting a healing response, i.e.:

1. Provides a semi-occlusive, moist wound environment²
2. Removes exudate²
3. Removes excess interstitial fluid (edema)³
4. Increases dermal perfusion²
5. Stimulates granulation tissue³
6. Provides wound contraction⁴

NPWT has gained rapid acceptance by physicians and surgeons in the management of acute and chronic wounds.⁵ The delivery of NPWT to the wound takes two forms, each of which was developed independently, with the major difference between them being the type of dressing interface used: foam¹ or antimicrobial (PHMB) gauze.⁶

The applied negative (subatmospheric) pressure dressing system causes wound area (length x width) contraction. The soft tissue tension due to the mechanical force of suction against the interface, either reticulated foam or antimicrobial (PHMB) gauze produces a decrease in wound volume. This volume change is dependent on the location of the wound and elasticity of the surrounding tissues. The base of the wound is also susceptible to this interface tension due to the mechanical force of applied negative pressure within a dressing system. The tissue strain due to the compression against the interface product translates to the cells and results in initiating cellular function.⁷

It has been shown that NPWT facilitates drainage of excess fluid and debris from the wound to which it is applied and that it induces mechanical deformation of the wound edge tissue.^{1,8,9} Furthermore, NPWT creates a moist wound healing environment¹⁰ which helps to encourage the normal wound healing process. The published results of studies indicate that NPWT reduces bacterial load,⁸ increases granulation tissue formation,⁸ reduces edema,¹¹ stimulates cell-mediated immune response,¹² decreases blood vessel permeability,¹³ and stimulates angiogenesis and blood flow to the wound margins.¹⁴

There is evidence to suggest that NPWT may also help to remove inhibitory cytokines and activated polymorphonuclear leukocytes present in the wound bed. These are responsible, in part, for chronic wounds becoming suspended in an inflammatory state.¹⁵

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Understanding Pain and Pain Management

Mölnlycke Avance® NPWT System includes proprietary Safetac® technology dressing options to help minimize pain and trauma.¹

The International Association for the Study of Pain defines pain as a sensory and emotional experience associated with actual or potential tissue damage². It has been suggested that wound-related pain can have a negative impact on wound healing, which can adversely affect patient quality of life (QoL).³

It is known that patients with wounds can experience nociceptive pain (a persistent ache) as a result of tissue damage and neuroceptive pain (a stinging or stabbing pain) as a result of nerve damage. The assessment and management of wound pain is important in gaining trust from patients, as pain can lead to increased stress, which has been shown to contribute to a delay in wound healing⁴. Stress most commonly refers to the consequences of the failure of the human body to respond appropriately to physical or emotional threats⁵. Psychologically, it is known that stress can increase the probability of patients making negative cognitive appraisals. For example, patients who perceive a dressing removal to be an unpleasant and stressful event can experience poor coping strategies and avoidance of treatment, which can be harmful to the wound healing process. In addition to this, stress is known to have a physiological impact, as it may lead to raised levels of the hormone cortisol⁶. Increased cortisol levels can lead to increased heart rate and blood pressure. This altered state can impact the normal function of the immune system which in turn impacts the body's inflammatory response ability. If the immune system is suppressed, this can have a negative impact on the wound repair process. For example, a reduction in the level of pro-inflammatory cytokines and enzymes involved in tissue repair will create a delay in the healing process. If immune suppression is prolonged, it may also create an opposite effect, in which the immune system now elicits an excessive response and attacks its own body⁷, which is also detrimental to the healing process. If pain and the associated stress are what the patient perceives it to be then it is recommended that the clinician to be aware of non-verbal signs and behaviors. There are a variety of pain assessment tools currently used in clinical practice. It is recommended that pain be assessed before, during and after dressing change utilizing the pain assessment tool designated by each health care facility/agency.

The World Union of Wound Healing Societies (WUWHS) developed specific guidance for the assessment and management of patients with wound pain.^{8,9} The WUWHS guidance clearly states that "the goal for all wound types is to minimize pain and create optimal conditions for wound healing".⁹ It is a well-recognized phenomenon that patients with chronic wounds have associated pain. It has also been identified that dressing changes can cause the most pain and discomfort for these patients¹⁰. Wound healing can be disrupted when pain is present, if the patient becomes stressed thinking about their dressing change, or during the dressing change.¹¹ By assessing pain before each dressing change, clinicians can help to prevent pain by selecting atraumatic dressings and using appropriate analgesics if needed.¹² NPWT is one of the most successful treatments for effective wound healing. Other research has indicated that patients experience pain during NPWT dressing changes. In the past this has created a conundrum for the clinician but the advancement in silicone technology may in fact be a turning point to this pain versus healing situation.

Patient quality of life can be affected during NPWT. It has been reported that some patients find this treatment embarrassing, from the noise, exudate smell and the impact of carrying

the pump.¹⁵ Furthermore, the NPWT System can cause patients to feel anxious due to both the patient and the health professional being unfamiliar with this form of treatment. It can also restrict patients' daily care and wider social life, which may result in a negative self-image and low self-esteem.¹⁶ Others have found that NPWT has a positive effect on their life and allows for a sense of control.¹⁷ Rafter quoted that NPWT resulted in an improved quality of life for one patient with three complex wounds.¹⁸ All circumstances need to be assessed for each patient prior to commencement of NPWT. Appropriate patient selection with a clear goal of treatment should be established. A negative pressure wound therapy system that provides less pain and less trauma during dressing changes can assist in optimizing wound healing and improve the patient experience. This is the foundation for the Mölnlycke Health Care and the Avance® NPWT System.

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Understanding Pain and Pain Management



The Avance® NPWT System (Mölnlycke Health Care) has been developed as a flexible and easy-to-use treatment that helps to promote wound healing, including drainage and removal of infectious material or other fluids, under the influence of continuous and/or intermittent negative pressure. The Avance® Pumps are lightweight, giving patients greater mobility either in the hospital or at home. It can be used with a choice of dressing kits, depending on the wound and patient's needs.

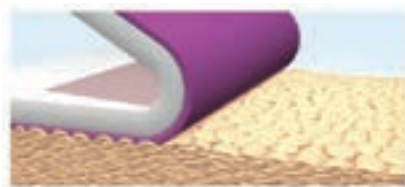
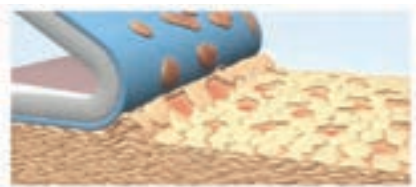
Avance® Products with Safetac® Technology

Avance® is the only NPWT System that offers products with Safetac®, a proprietary technology clinically proven to minimize dressing-related pain and trauma. These unique products (Avance® Film with Safetac® technology, Mepitel® and Mepiseal®) help to achieve and maintain effective NPWT while minimizing the risk of dressing-related trauma and pain.

Safetac® Technology

Safetac® is a proprietary soft silicone adhesive technology that minimizes pain to patients and trauma to wounds. Safetac® technology minimizes pain because it:

- Tacks gently to dry surfaces like skin, but not to moist surfaces like open wounds.
- Molds to the topography of the skin (i.e. peaks and valleys of the skin), covering more skin surface and spreading peel forces on removal to prevent skin stripping.
- Seals the wound margins, ensuring exudate does not spread to the surrounding skin and minimizing the risk of maceration.



Dressing Kits

Dressing kits contain polyurethane foam. Kits also contain one of two types of film for helping to maintain a closed wound environment – Avance® Transparent Film or Avance® Film with Safetac® technology and Avance® ViewPad™.



Avance® Max Pump

The Avance® Max Pump is lightweight, has a bed holder bracket or IV pole bracket and is easy to use. It can be used with a choice of dressing kits, depending on the wound and patient's needs. The Avance® Pump is capable of delivering continuous or intermittent NPWT across a range of -60mmHg to -180mmHg.



Avance® Flex Pump

The Avance® Flex Pump is lightweight at 2.2lbs, giving greater mobility for those patients in long term care or at home. It can be used with a choice of dressing kits. The Avance® Pump is capable of delivering continuous or intermittent NPWT across a range of -60mmHg to -180mmHg. The navigation is exactly the same as the Avance® Max Pump.

Avance® Max
600ml Canister



Avance® Max
1200ml Canister



Avance® Flex
Canister 300ml



Avance® Canister

There are two canister sizes available for use with the Avance® Max Pump, 600ml and 1200ml. For the Avance® Flex Pump the canister size is 300ml. The canisters are non-sterile single use devices that have hydrophobic and carbon bacterial filters. The exudate contained in the canister will solidify. There may be a visual volume displacement in the 300ml of 25ml, 600ml of 50ml and 1200ml of 100ml due to the solidifying agent expanding the liquid into a gel.



Avance® Tubing

This tubing connects into any of the canister sizes for the Avance® Max and Flex Pumps at one end and then into the dressing Avance® ViewPad™ by means of the connector.



Avance® ViewPad™

This tubing connects from the clinician selected cover film to the Avance® Tubing by means of the connector.



Avance® Carrying Case

This is a single-patient-use case that enables patient mobilization with the Avance® Flex Pump and attached 300ml canister.



Avance® Bedside Holder and IV Pole Connection

The bedside holder can be converted to an IV Pole holder to provide patient mobility in the acute care setting.





Avance® Foam

The green-colored Avance® Foam is a hydrophobic reticulated polyurethane foam with a large open cell structure. It is intended for use in the Avance® NPWT System to distribute the pressure across the wound surface and allow passage of fluids and exudate through to the negative pressure system. The color of the foam dressing enables easy visualization of bleeding and exudate. The foam is available in small, medium and large size dressing kits.



Mepitel®

Mepitel® is a porous, transparent and flexible polyamide net with open mesh structure, coated on both sides with Safetac® technology, a proprietary soft silicone adhesive technology. When clinically indicated, Mepitel® is applied to the wound bed to minimize pain and prevent trauma on dressing removal or to protect exposed bone or fragile tissues from the direct positioning of NPWT foam.



Avance® Film Safetac® technology

Avance® Film with Safetac® technology consists of a Safetac® skin contact layer and a backing film which is vapor-permeable and waterproof. It is intended for use with the Avance® NPWT System to fixate the wound dressing and provide an effective seal. The film is designed to minimize pain and prevent trauma at dressing change, additionally it has a high moisture vapor transfer rate to reduce risk of maceration. The Safetac® skin contact layer facilitates repositioning of the film dressing.



Avance® Transparent Film

Avance® Transparent Film is a thin, transparent and breathable polyurethane film coated with a polyacrylic adhesive. The film has a high moisture vapor transfer rate and is intended for use with the Avance® NPWT System to fixate the wound dressing and provide an effective seal.



Mepiseal®

Mepiseal® is a soft silicone sealant. It is intended to be used on periwound skin in conjunction with a wound dressing to prevent leakage and premature loosening of the dressing. It is designed to fill uneven skin surfaces and mold around wounds in challenging anatomical locations. When used under NPWT dressings, Mepiseal® serves as a sealant to help create and maintain a seal, which enables delivery of effective Negative Pressure Wound Therapy.



Avance® Y Connector

Allows treatment of multiple wounds with easy inspection of fluid and exudate. It can be used with all Avance® dressing kits.



Antimicrobial (Polyhexamethylene Biguanide) Gauze

The antimicrobial (PHMB) gauze dressing is intended for use as a primary dressing for a range of wounds to distribute the pressure across the wound surface and allow passage of fluids and exudate through to the negative pressure system. The inclusion of polyhexamethylene biguanide (PHMB) in these dressings helps resist bacterial colonization of the dressings and inhibit bacterial penetration through the dressings. The antimicrobial (PHMB) gauze dressing can be used with a 10 French Flat Drain, 15 French Channel Drain or with the Avance® ViewPad™.



10 French Flat Drain



15 French Channel Drain

Indications for Negative Pressure Wound Therapy

The Avance® NPWT System

1. Acute wounds¹
2. Burns (partial thickness) requiring skin grafts^{2,3}
3. Venous ulcers⁴
4. Arterial insufficiency ulcers (after revascularization)⁴
5. Traumatic wounds (i.e. flap or meshed graft)⁵
6. Pressure ulcers^{6,7}
7. Diabetic foot ulcers and partial foot amputations^{8,9}
8. Chronic leg ulcers¹⁰
9. Chronic open wounds¹¹
10. Flaps and grafts¹²
11. Dehisced surgical wounds^{13,14}
12. Sternal wounds¹⁵
13. Abdominal wounds¹⁶
14. Debrided necrotizing fasciitis^{17,18}
15. Surgical incisions

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Contraindications

The information contained within this section is not exhaustive. Please consult the relevant instructions for use (IFU) prior to using the components of the Avance® NPWT System and other products referred to in these guidelines.

Contraindications for treatment with the Avance® NPWT System are:

1. Direct positioning of NPWT (foam dressings) over exposed organs, veins and arteries, anastomotic sites, tendons or nerves
2. Malignant wounds
3. Untreated osteomyelitis⁴
4. Non-enteric unexplored fistulas⁴
5. Wounds with difficult hemostasis
6. Wounds with significant amounts of necrotic tissue or eschar present

*In physician directed circumstances, the Avance® NPWT System may be used under close supervision with patients medically identified as palliative care.

General Recommendations for Avance® NPWT System Use:

1. The safe and effective operation of Avance® NPWT System requires a prescription from a physician.
2. Avance® NPWT is only to be used by persons who have been deemed competent in wound care and the use of Avance® NPWT System.
3. Before the initiation of treatment, the indications, contraindications, precautions and warnings listed in the instructions for use - IFU (supplied with Avance® NPWT System) should be reviewed. Failure to read and follow all instructions supplied with the system may lead to considerable dangers and cause injury and pain to the patient. Mölnlycke offers training programs for the use of the Avance® NPWT System.
4. Avance® NPWT System is intended for use with patients in acute and post-acute settings by trained medical and healthcare personnel adhering to the instructions for use. Consideration should be given to the patient's mental capacity, hearing function and visual acuity. Additionally the family member or caregiver identified should have the same review of considerations prior to use in the home care setting.
5. Therapy changes (pressure level, continuous or intermittent mode) may only be done as prescribed by the patient's physician.
6. Mölnlycke Health Care recommends that in all settings, infection control measures should be followed according to each facility, organization or agency protocol. The resource for information is the Centers for Disease Control who have Guidelines for Hand Hygiene at <http://www.cdc.gov/handwashing/>, Guidelines for Standard Precautions and Guidelines for Isolation precautions at <http://www.cdc.gov/niosh/>.
7. Before initiating NPWT treatment, verify diagnosis and related comorbidities that could affect the treatment process.
8. Before initiating NPWT treatment, the patient's nutritional status should be evaluated and severe malnutrition addressed.

9. Before initiating NPWT treatment a complete wound assessment (see Wound Assessment) should be performed to establish a baseline status for reference during the course of treatment.
10. Before initiating NPWT the wound should be properly prepared for wound healing and should be free of non-viable tissue and debris.
11. There is limited research in the use of NPWT on pediatric patients. Healthcare providers should exercise clinical judgment when considering the potential benefits and risk of using NPWT on pediatric patients.
12. Patients undergoing NPWT need frequent supervision. Signs of possible infection or complications such as fever, pain, redness, increased warmth, swelling and purulent discharge must be addressed immediately. The device, wound, surrounding skin and patient status must be monitored accordingly to ensure sufficient and safe treatment and patient comfort. The frequency of dressing changes may need to be increased if infection is present.
13. The wound should be continually reassessed for improvement. If improvement is not noted at 14 day intervals the treatment plan should be reassessed.
14. The patient or caregiver should be educated to regularly check the dressing and device for operational function as set by the clinician.
15. During dressing application and removal the foam pieces and, if applicable, the pieces of non-contact layer should be noted in the patient's medical record and on the Avance® Film with the date for that dressing change. These numbers should be validated at the next dressing removal.

General Considerations for Application of Avance® Film with Safetac® technology:

1. Ensure the periwound is clean and DRY.
2. Do not use bath soaps with moisturizer to the periwound as it will negatively affect the adhesion of the this film.
3. Do not apply ointments or lotions to the periwound prior to the application of the this film.
4. Do not use skin barrier preparation solutions on the periwound as it will negatively affect the adhesion of this film.
5. Although it is important to protect the periwound skin from direct contact with foam, avoid covering the periwound with a layer of film, as if to picture frame the wound shape. Multiple layers of film decrease the moisture vapor transmission rate, increase the risk of maceration and negatively affect the adhesion of the cover film.
6. Do not apply this film in an overlapping strip pattern.
7. Use this film as a single cover piece cut to the dimensions of the wound, ensuring 3 to 5cm overlap onto the periwound. It is the irregularity of the skin surface that allows this film to adhere securely to the skin.
8. The film should be applied gently, draping over the foam, down the side of the crested foam and patted down onto the skin. Wrinkles in the film are acceptable. This method allows the device to draw the film down into place on the topography of the skin.

9. This film is NOT designed for wounds within high moisture anatomical locations.
10. This film is NOT designed for wounds with difficult anatomical geometries where a single piece does not allow for the required 3 to 5cm overlap onto the periwound.
11. If the wound area is large and more than one sheet of film must be used, ensure that there is a 3 to 5cm overlap of the second sheet onto the first sheet and 3 to 5cm the periwound skin.
12. When using this film for the Bridging Technique the primary or skin protection film layer should be cut only slightly larger than the width of the bridge foam. The cover or top layer of film should have 3 to 5cm overlap onto the periwound.
13. When using this film for the Mushroom Technique the primary film layer should be cut only slightly larger than the width of the mushroom cap surface foam. The cover or top layer of film should have 3 to 5cm overlap onto the periwound skin.
14. This film may shift when used over areas of high pressure and shear, such as the plantar surface of the foot in ambulatory patients. In these cases, use of Avance® Transparent Film may be more appropriate.

General Considerations for Application of Avance® Transparent Film:

1. Ensure the periwound is clean and DRY.
2. Do not use bath soaps with moisturizer to the periwound as it will negatively affect the adhesion of this film.
3. Do not apply ointments or lotions to the periwound prior to the application of this film.
4. If the healthcare provider assesses that the wound requires skin barrier preparation solution, this may be used under this film.
5. Although it is important to protect the periwound skin from direct contact with foam, avoid covering the periwound with a layer of film, as if to picture frame the wound shape. Multiple layers of film decrease the moisture vapor transmission rate, increase the risk of maceration and negatively affect the adhesion of the cover film.
6. This cover film is designed for difficult anatomical geometries and areas of reasonable anatomical moisture.
7. This cover film may be applied in an overlapping pattern or used as a single piece.
8. When using this film for the Bridging Technique the primary film layer should be cut only slightly larger than the width of the bridge foam. The cover layer of film should have 3 to 5cm overlap onto the periwound.
9. When using this film for the Mushroom Technique the primary film layer should be cut only slightly larger than the width of the mushroom cap surface foam. The cover layer of film should have 3 to 5cm overlap onto the periwound.

General Considerations for Use of the Avance® Y-Connector:

1. Never bridge infected wounds to each other or to a non-infected wound
2. Prepare wound for dressing application as appropriate
3. Prepare wound dressing materials to be utilized as appropriate
4. Select which wound to be dressed first and complete that dressing according to the appropriate application guideline
5. Connect the Avance® ViewPad™ to the Avance® Tubing and initiate negative pressure wound therapy
6. Troubleshoot the dressing and if applicable make any necessary corrections
7. Leave the dressing connected to the pump in RUN Mode
8. Apply prepared dressing materials to the second wound according to the appropriate application guideline
9. While the pump is in RUN Mode, clamp the Avance® ViewPad™ from the first wound and disconnect the Avance® Tubing
10. Connect the Avance® Tubing to the second Avance® ViewPad™ and initiate negative pressure wound therapy
11. Troubleshoot the dressing and if applicable make any necessary corrections
12. Apply the Avance® Y-Connector onto the Avance® Tubing at the snap connection
13. Apply each short stem of the Y-Connector into each of the Avance® ViewPad™ and snap connections
14. Unclamp each of the Avance® ViewPad™ tubing lines
15. Troubleshoot the dressing and if applicable make any necessary corrections.
16. A maximum of one Avance® Y-Connector may be used to connect up to two wounds to a single pump.
17. Blockage of Avance® Y-Connector may occur. When using Avance® Y Connector, blockages may not be detected by the pump unless all Avance® ViewPads™ or the Avance® Tubing are blocked.

Precautions

The information contained within this section is not exhaustive. Please consult the relevant instructions for use (IFU) prior to using the components of Avance® NPWT System and other products referred to in these guidelines.

1. For Infection Control purposes, in addition to the above information, it is advised at a minimum to utilize gloves. If exposure to body fluid is anticipated then apply gown, goggles or follow designated PPE protocol.
2. If disconnection from the Avance® Pump is required (e.g. for showering, medical examinations or other activities), consideration should be given to the amount of time without applied negative pressure and a clinical decision taken accordingly. The decision should be based on an assessment of the bacterial burden of the wound and the risk of infection, as well as the amount of exudate and the integrity of the film seal since exudate

may leak onto surrounding skin, causing maceration. Patients should be discontinued from the pump only for short periods of time and for no more than two hours in a 24-hour period. If the NPWT is discontinued for more than two hours in a 24-hour period, then the NPWT dressing should be removed and an alternative dressing should be applied to prevent deterioration of the wound

3. Reduce the risk of damage to the periwound skin integrity:
 - a. Ensure that foam does not contact intact skin and remains within the confines of the wound rim/edge
 - b. Ensure that the Avance® ViewPad™ does not extend beyond the margins of foam allowing contact onto the skin
 - c. Picture frame/window framing a wound with hydrocolloids, transparent film or film with Safetac® technology should be avoided as this will reduce the moisture vapor transfer rate and result in increased risk for maceration.
 - d. **DO NOT STRETCH** the Avance® Film with Safetac® technology or the Avance® Transparent Film during the application as this could result in increased tension on the skin surface once negative pressure is applied.
 - e. Discontinue use of the Avance® NPWT System if the patient develops any signs or symptoms of sensitivity to any of the components. Contact the patient's physician to inform of change in patient status.
4. Avance® NPWT System is not recommended if enteric fistula effluent management or containment is the primary goal of therapy.
5. Avance® NPWT System when utilized for placement on a closed surgical incision should be placed at the time of surgical closure to the clean dry periwound. To be effective, the dressing should remain in place for a minimum of two days to a maximum of seven days at which time the dressing should be changed by the physician or a healthcare provider.
6. The physician is responsible for determining the prescribed therapy mode of Continuous or Intermittent. It should be noted that Continuous is recommended for use in the presence of unstable structures, highly exudative wounds, new onset flaps/grafts, patients with increased risk for bleeding and wounds containing acute enteric fistulas.
7. Fluid loss should be monitored to prevent dehydration in children, small statured adults, elderly persons or individuals with high volume exudating wounds. This fluid loss assessment should include not only the canister but also the tubing.
8. If a patient should experience autonomic hyperreflexia, discontinue treatment with Avance® NPWT System and consult the patient's physician immediately.
9. If the patient has known ischemic conditions increased monitoring of wound status is required to avoid risk of wound bed deterioration.
10. The Avance® NPWT System should not be placed on or in close proximity to the vagus nerve to reduce the risk of bradycardia.
11. Avoid circumferential application of the Avance® Film with Safetac® technology and the Avance® Transparent Film as this could impair the distal circulation. In instances where circumferential application is required in the lower extremities to maintain a good seal, routinely check for presence of distal pulses during application and throughout treatment. To avoid a tourniquet effect, it is suggested to use multiple pieces to create a

seal rather than a single circumferential wrap. Remove the dressing and contact the prescribing physician if vascular impairment is noted.

12. Do not use oxidizing solutions such as hypochlorite or hydrogen peroxide in the wound bed prior to placing the Avance® Foam as this may negatively affect the properties of the foam.
13. An adhesive dressing applied too taut can create an excessive vacuum that can cause the patient to experience pain. The dressing must be changed and the wound thoroughly assessed.
14. The patient should be monitored closely for signs and symptoms of infection such as pain, tenderness, redness, swelling, warmth or rash in the periwound area, an increase in drainage or purulent drainage and foul odor. Infections can progress rapidly and become systemic, causing flu-like symptoms such as fever, chills, nausea and vomiting. With any suspicion of infection the dressing must be changed, the periwound thoroughly assessed and the prescribing physician contacted immediately
15. Patients with grossly infected purulent wounds or wound related sepsis should be debrided before application of the Avance® NPWT System. In these cases the reticulated sponge may become a closed abscess due to poor to absent fluid flow of thick purulence. These wounds may require more frequent dressing changes to inspect the sponge until amount of exudate or texture of exudate decreases significantly.^{1,2,3}

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1. Shum, K., Suzuki, K. Emerging insights on negative pressure wound therapy. *Podiatry Today* 2013 26(8)
2. Weed, T., Rattiff, C., Drake, D. Quantifying bacterial bioburden during negative pressure wound therapy: does the wound VAC enhance bacterial clearance? *2004 Annals of Plastic Surgery* 276-280
3. Mouës, C. M. et al Bacterial load in relation to vacuum-assisted closure wound therapy: A prospective randomized trial *Wound Rep Reg* 2004 12(1)11-17

Warnings

1. Avance® NPWT System Pump(s) must not be used by the patient while in the bathtub or shower.
 - a. The pump may be temporarily disconnected at the connection of the Avance® Tubing to the Avance® ViewPad™. The tubing should be clamped into the closed position on both tubing lines. When reconnecting the tubing, unclamping the clamps and powering on the unit for resumed NPWT it is important to ensure the prescribed pressure setting is viewed on the display panel.
 - b. If disconnection from the Avance® Pump is required (e.g. for showering, medical examinations or other activities), consideration should be given to the amount of time without applied negative pressure and a clinical decision taken accordingly. The decision should be based on an assessment of the bacterial burden of the wound and the risk of infection, as well as the amount of exudate and the integrity of the film seal since exudate may leak onto surrounding skin, causing maceration. Patients should be discontinued from the pump only for short periods of time and for no more than two hours in a 24-hour period. If the NPWT is discontinued for more than two hours in a 24-hour period, the NPWT dressing should be removed and an alternative dressing should be applied to prevent deterioration of the wound.
2. Avance® NPWT System Pump(s) must not be used by the patient while undergoing Magnetic Resonance Imaging (MRI) / tomography examinations.
 - a. The pump may be temporarily disconnected at the connection of the Avance® Tubing to the Avance® ViewPad™. The tubing should be clamped into the closed position on both

tubing lines. When reconnecting the tubing, unclamping the clamps and powering on the unit for resumed NPWT it is important to ensure the prescribed pressure setting is viewed on the display panel.

3. Avance® NPWT System Pump(s) must not be used by the patient while receiving Hyperbaric Oxygen Therapy (HBO).
 - a. The pump may be temporarily disconnected at the connection of the Avance® Tubing to the Avance® ViewPad™. The tubing should be clamped into the closed position on the Avance® Tubing side but remain open on the Avance® ViewPad™ side. This open end should be wrapped in clean gauze or toweling to absorb drainage during the treatment and covered with an examination glove or other protective barrier to prevent contamination. When reconnecting the tubing, unclamping the clamps and powering on the unit for resumed NPWT it is important to ensure the prescribed pressure setting is viewed on the display panel.
 - b. Refer to Appendix for detailed HBOT treatment guidelines.
4. Avance® NPWT System Pump(s) must not be used by the patient while undergoing/ receiving investigations/therapies involving microwaves (e.g. high-energy transurethral microwave thermotherapy).
 - a. The pump may be temporarily disconnected at the connection of the Avance® Tubing and Avance® ViewPad™. The tubing should be clamped into the closed position on both tubing lines. When reconnecting the tubing and powering on the unit for resumed NPWT it is important to ensure the prescribed pressure setting is viewed on the display panel.
5. Avance® NPWT System must not be used by the patient while in hazardous explosive environments.
6. The use of NPWT may increase the risk of bleeding so patients should be monitored closely during therapy.

For example:

 - a. Patients with active bleeding, difficult wound hemostasis, or at risk of bleeding, e.g. those receiving anticoagulant therapy (anticoagulants or platelet aggregation inhibitors).
 - b. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.
7. Avance® NPWT System should not be used when treating wounds in close proximity to organs or large veins and arteries.
8. To prevent puncture of blood vessels, protective barriers or organs, and damage to tendons, bones and nerves, sharp edges (e.g. staples) or bone fragments must be eliminated from the wound area or covered with a non-adherent wound contact layer (e.g. Mepitel®) prior to using Avance® NPWT System.
9. The Pump has special considerations for use:
 - a. Mölnlycke Health Care can only guarantee the safe function of the system if Avance® Max/Flex Pump is used in combination with the original products included in the Avance® NPWT System. Avance® Max/Flex Pump is EMC-tested (Electro Magnetic Compatibility) in conformity with the requirements of IEC 60601-1-2 and can be used in the vicinity of other EMC-tested devices that fulfill the requirements of the relevant

IEC 60601-1-2 standard. Untested HF (High frequency) sources, radio networks or the like can influence the operation of the device and may not be operated in combination with Avance® NPWT System. The warnings, precautions and safety instructions should be read and fully understood before use of the system.

- b. Before the pump is charged, the local power supply must be checked to make sure that it is the same as the voltage given on the pump's specification plate.
 - c. The Avance® Max/Flex Pump must remain in an upright position during use.
 - d. The Avance® Max/Flex Pump must not be dried with microwaves.
 - e. The Avance® Max/Flex Pump is protected against the penetration of solid/fluid substances by a hydrophilic filter. If this filter fails, a warning will sound. The pump will no longer provide negative pressure at this point, contact the customer service center at the telephone number on the pump label for a pump replacement.
10. The dressing kits have special considerations for use:
- a. Dressings must not be placed into unexplored or blind tunnels or non-enteric fistulas.
 - b. In-growth of tissue into the wound dressing may occur if it is not changed according to recommendations or according to the wound condition of the individual patient.
 - c. If more than one piece of Avance® Foam/wound contact layer is used, always count the number of pieces and document the total in the patient's medical record. This protocol is to ensure that all pieces are removed at the next dressing change.
 - d. Ensure there is contact between all pieces of the Avance® Foam to allow for even distribution of negative pressure.
 - e. The Avance® Foam dressing should not be cut over the wound site as fragments could fall into the wound. It is important to check that no fragments are left in the wound when the dressing is changed.
 - f. The Avance® Foam should not be over-packed into any area of the wound, as this could damage tissue, impair exudate removal, or affect delivery of negative pressure.
 - g. The Avance® Foam should be positioned in the wound and NOT overlap onto intact skin.
 - h. Oxidizing agents such as hypochlorite solutions or hydrogen peroxide must not be used in the wound bed prior to the application of Avance® Foam.
 - i. The presence of topical preparations on the patient's skin, prior to application of the film, can negatively affect the ability of the film to adhere securely.
 - j. Stretching the Avance® Transparent Film and Avance® Film with Safetac® technology during application may cause damage to the surrounding skin and loosening of the film when negative pressure is applied.
 - k. Blockage of the dressing tubing, Avance® ViewPad™ and canister tubing may occur if the tubing is kinked at any point along the tubing pathway to the canister.
 - l. The Avance® Tubing supplied with Avance® NPWT System must never be placed in the wound.
 - m. Consideration should be given to using a protective barrier where tubing comes into contact with fragile or friable skin.

- n. Placing topical ointments on the wound bed prior foam application could negatively affect the pore capability for fluid transfer.
- o. Non-viable tissue does not have the same fluid flow capability as viable tissue therefore placing foam over non-viable tissue could negatively affect the pore capability for fluid transfer¹.

11. The Avance® NPWT System and its components have been US-FDA cleared for use as a system. Use of any of these components with other manufactured NPWT devices or components is not cleared by US-FDA, any liability incurred is the responsibility of healthcare provider.

References: 1. Ashcraft K A, Bonneau RH. Brain Behav Immun 2008; 22(8):1231-1240.

Chapter 2.0: General Wound Assessment

Pain Assessment

The International Association for the Study of Pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”.

There are three types of pain: nociceptive, neuropathic pain and emotional

Nociceptive: This pain may be defined as an appropriate physiological response to a painful stimulus. It may involve acute or chronic inflammation. Acute nociceptive pain occurs as a result of tissue damage and is usually time limited. Where wounds are slow to heal, the prolonged inflammatory response may cause heightened sensitivity in both the wound and in the surrounding skin.¹

Neuropathic: This pain has been defined as an inappropriate sensory response caused by a primary lesion or dysfunction in the nervous system. Nerve damage is the commonest cause of the primary lesion, which may be due to trauma, infection, metabolic disorder or cancer. Neuropathic pain is a major factor in the development of chronic pain. It is often associated with altered or unpleasant sensations whereby any sensory stimulus such as light touch or pressure or changes in temperature can provoke intense pain.

Emotional: This pain arises as a consequence of the psychological impact of injury or illness. Anxiety, stress and fear are easily identified at dressing changes but it is the shame or embarrassment that can come from wound odor and high exudate levels that may not be as readily identifiable. The social isolation² can be a significant factor to Quality of Life (QoL) during NPWT episode of treatment. Wound-related pain, either as a direct result of pathological processes or interventions (e.g. dressing removal), can cause stress^{3,4,5} which can result in a number of unwanted effects, including:

1. Adverse effects on physical health⁶ and many physiological processes in the body⁷
2. Delayed healing in acute wounds,⁸ which hypothetically may also be true for chronic wounds⁹
3. An immunosuppressive effect¹⁰ that can lead to increased infection rates,¹¹ specifically in burns¹²
4. A possible role in the pathology of metabolic disorders related to chronic wounds, such as diabetes¹³ and cardiovascular disease.¹⁴

Ultimately stress has a huge impact on the QoL of patients,⁶ particularly those suffering from chronic wounds.^{13,14} Patients can also suffer pain and stress at dressing removal which can also impact the healing process. The removal of dressings that adhere to the wound bed is a common cause of trauma,¹⁵ as is the epidermal stripping of the skin surrounding wounds that can result from the repeated application and removal of adhesive dressings.¹⁶ Adhesive-induced damage, as a consequence of epidermal stripping, may lead to inflammatory skin reactions, edema and soreness, which can have a detrimental effect on skin barrier function.¹⁷ If dressings inadequately manage wound exudate or fail to adequately control moisture balance at the wound-dressing interface, the result may be excoriation, irritant dermatitis, and maceration of peri-wound skin.¹⁶ Wound-related trauma can increase the size of wounds, exacerbate wound pain and delay healing,¹⁸ all of which can have cost implications for health-care providers, as well as having an adverse effect on the quality of life of patients.¹⁹

Dressings with Safetac® technology have helped to overcome many of the issues that arise as a result of pain and tissue trauma at dressing change. Safetac® technology utilizes soft silicone, a material that readily adheres to intact dry skin while remaining in situ on the surface of a moist wound or damaged peri-wound skin without adhering to the fragile tissues. Consequently, these dressings can be applied and reapplied without causing trauma to the wound or stripping the epidermis in the peri-wound region^{17,20,21,22,23} as well as minimizing pain at dressing removal.^{24,25,26}

In summary, the clinician can now use utilize gained knowledge about patient pain, trauma and stress when caring for a wound, especially a wound receiving NPWT and the effects on wound healing. The patient's perceived pain must be quantified in order to be appropriately addressed and documented. This information can then guide the clinician through a patient centered plan of treatment that will minimize these effects. The clinician should assess the patient's pain prior to dressing change to serve as a baseline, during the dressing change if indicated and after the dressing change. Pain is individualized and therefore no single tool can be applied to all patients but for assessment consistency the same tool should be used through the patient's episode of care. There are simple subjective self-reporting scales such as the visual analog scale – VAS, where cartoon-like faces portray varying degrees of facial expression from a smiling “no pain” to a crying “hurts worst” cartoon-like face. The numerical scale utilizes numbers from 0-10 on a 10 centimeter marked line where 0 is associated with “no pain” to 10 is associated with “worst possible pain”. Acknowledging the patient's pain and recording the trend can help the patient deal with the associated emotional stress.

NOTE: The above scales are suggested options, the clinician should utilize their facility or agency's designed pain assessment tool and corresponding protocol for use.

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Wound Assessment

To capture a complete baseline of the wound prior to implementation of NPWT it is essential to assess the wound. This assessment should include a patient history and a history of the wound. The patient history should be completed according to facility or agency protocol. Additionally, the wound history should be completed according to facility or agency protocol. This information will provide a baseline status of the wound and allow the clinician the ability to set a plan of care goal for NPWT and evaluate in an ongoing manner the progression of wound healing using NPWT. It is recommended that the wound be assessed at each dressing change or when a change in status is noted but at a minimum at least weekly. The outline below is common clinical knowledge for wound care practitioners to complete an assessment.

To utilize functional outcome measures for healing a thorough assessment is suggested below and should include the following:

1. Wound classification
 - a. **For example:** Acute, Chronic, Partial Thickness or Full Thickness
2. Wound etiology
 - a. **For example:** Dehisced surgical incision, Pressure Ulcer, etc
3. Wound location
 - a. Anatomical site
4. Wound stage (if the etiology is pressure ulcer)
5. Wound measurement (in centimeters)
 - a. Length x Width x Depth
 - b. **For example:** For inter-rater reliability using the hands of a clock as axis points, i.e. 12:00-6:00 to represent the head to toe axis for length and 9:00-3:00 to represent the perpendicular side to side axis for width and clock location for depth measurement.
6. Wound tunneling/sinus tract (in centimeters)
 - a. The depth of a tunnel/tract can be measured utilizing a sterile swab or as directed by physician.
 - b. The location of the tunnel/sinus tract in the wound can be defined using the points of a clock using the format suggested above.
7. Wound undermining (in centimeters)
 - a. This area of wound bed erosion from the wound edge can be noted using the points of the clock.
 - b. **For Example:** Undermining noted from 2:00-4:00 position with a depth of 2cm
8. Wound edge
 - a. **For Example:** Open – clean red margin, rolled (epibole) – surface cells have migrated over the edge, etc.

9. Periwound
 - a. **For Example:** Normal for skin tone, macerated, etc.
10. Wound bed tissue type and percentage of each type
 - a. **For Example:** Granulation 50%, Necrotic 30%, etc.
11. Drainage (Exudate) amount
 - a. If an initial application this may be difficult calculate but noted by clinical judgement
 - b. Subsequent applications can utilize volume measurements as indicated on canister guide
12. Drainage (Exudate) type
 - a. **For Example:** Serous, Serosanguineous, bloody etc.
13. Odor
 - a. This should be assessed after the wound bed has been cleansed and the previously removed dressing is away from the wound area.
14. Pain
 - a. Utilize the pain assessment tool per facility or agency
 - b. Pain should be assessed before dressing change and if indicated during and after
 - c. Assess the option of using a non-contact layer at the foam tissue interface
 - d. If there is a sudden onset of pain during the episode of care this requires specific detailed assessment
15. Medication
 - a. It should be noted if the patient has medication ordered for dressing change, details for that medication and the time interval from dosage to dressing change
16. Nutritional status
17. Off-loading of the wound area
 - a. Utilize devices to reduce weight-bearing through a limb for extremity wounds
 - b. Utilize devices to reduce trunk weight-bearing inferiorly through pelvis or posteriorly through spinous processes
18. Wound location management
 - a. Utilize devices to provide positioning, immersion, envelopment and appropriate microclimate at the wound site

Essentials of NPWT Treatment Documentation

Each health care setting may have protocols for assessment documentation and what is to be included in that format. The following information is provided to serve as a suggestion of information that may be beneficial to include in patient documentation. The information below is common clinical knowledge for wound care practitioners to complete wound documentation and is not intended to supersede facility protocols.

In addition to the wound assessment data noted above, one could include:

1. What position was patient placed for dressing application?
2. Who was present at the treatment session?
3. What wound/skin cleanser was utilized?
4. What is the prescribed negative pressure setting?
5. What type of cover film was utilized (Avance® Film with Safetac® technology or Avance® Transparent Film)?
6. What dressing application technique was utilized?
7. What was the number of pieces of foam placed into the wound, and/or gauze, and/or contact layer?
8. What was the suction mechanism, Avance® ViewPad™ or a type of drain (15 French Channel or 10 French Flat)?
9. What is the plan of care and end goal of NPWT?
10. What is the dressing change frequency?
11. What pump and dressing education was provided to the patient?

Again, each health care setting has protocols for subsequent treatment visits and what is to be included in that format. The following information is to serve as a suggestion of information that may be beneficial to include in patient documentation and is not intended to supersede facility protocols. In addition to the data noted above, one could include:

1. How did the patient tolerate the previous treatment?
2. How does the patient rate their pain before the dressing change, with film removal, foam removal and after dressing application is completed?
3. What is the assessment/status of the periwound?
4. What are the wound measurements to show progression of wound healing (or regression, requiring a change in plan of care)?
5. What is the volume of exudate produced from last application?
6. See items listed above in both the wound assessment section and items 1-11 in this section for inclusion data.
7. What was the length of time for this treatment, specifically the dressing application process, this information can attest to the complexity of dressing and is often times required by insurance providers?

Wound Odor and Infection

All wounds are colonized with bacteria, many of which have little or no effect on wound healing outcomes. Some bacteria are the source of wound odor, which is common when occlusive and semi-occlusive methods of wound dressings are utilized. Cleanse the wound using facility/agency specific wound care protocols may help control wound odor. However, the clinician must be vigilant for the signs of wound infection.¹

Acute wound infection has been described by four classic signs of inflammation:

1. Rubor – vasodilation, redness
2. Calor – increased temperature, warmth
3. Dolor – painful cytokine-mediated stimulation of nociceptive nerve fibers and nerve damage, pain
4. Tumor – increased vessel permeability leading to edema, swelling
5. Occasionally presence of purulent drainage¹

However chronic wounds have a different presentation of signs of infection:

1. Delayed healing
2. Increased serous drainage/inflammation
3. Increased tenderness
4. Friable/bleeding granulation tissue
5. Foul odor
6. Increased wound breakdown
7. Increased size
8. Satellite areas of new breakdown¹

Clinicians may decide to use NPWT for infected wounds in conjunction with standard treatment for infection as directed by the prescribing physician. It may also be possible to continue NPWT if a wound becomes infected during treatment. The frequency of dressing changes may need to be increased if infection is present, due to an increase in exudate levels during the infective episode.

References:

1. Ryan, Siobhan, Kevin Woo, and Gary Sibbald. "Infections in Chronic Wounds." *Chronic Wound Care: A Clinical Source for Healthcare Professionals*. By Stephan Landis. 4th ed. Malvern: HMP Communications, 2007. 303. Print.
2. A resource for further information can be found in the Principles of Best Practice. A World Union of Wound Healing Societies Initiative. Wound infection in clinical practice. An international consensus. London: MEP Ltd, 2008.

Duration of NPWT Treatment

The plan for discharge from NPWT should begin at the start of NPWT treatment with the setting of a treatment goal. The wound should be assessed at each dressing change. This progression toward closure may take on average 4-6 weeks, but there are wounds that may take extended periods of time due to the patient's co-morbidities or wound complications such as infection. The duration of treatment is frequently a decision made by the prescribing physician. As long as there is documented progress, the duration of treatment may be extended as needed. If clinical findings indicate that the wound has progressed to a state where the patient could be transitioned from NPWT to a traditional dressing treatment program, such as Mölnlycke's evidence – based advanced wound care dressings then it is appropriate to recommend this treatment plan to the prescribing physician.

Termination of NPWT Treatment

1. The patient is non-compliant (unable or unwilling) with the treatment plan of care.
2. The wound has not demonstrated progression toward healing for two weeks and possible corrective options have been employed.
3. The patient's wound has met the treatment plan of care goal.
4. The prescribing physician discontinues NPWT treatment.

Interpreting Changes In The Wound Bed Due to Effects of NPWT

1. Effective wound bed response to NPWT:
 - a. Drainage volume should gradually decrease
 - b. Wound tissue should deepen in red appearance as granulation tissue is stimulated by the modes of action of NPWT.
 - c. Drainage may change from serous to serosanguineous or bloody drainage
 - i. If acute bleeding suddenly occurs or in large amounts or frank blood is noted in the tubing or canister STOP NPWT, leave dressing in place, takes measures to control bleeding and seek medical attention.
 - d. Assessment of the wound at least weekly should show a progressive decrease in measurements.
 - i. If the wound is not decreasing in measurements then review plan of treatment, assess for intrinsic or extrinsic factors that may be affecting the wounds progress. Identify possible interventions to promote closure.
 - e. The wound rim/edge should become beveled and attached to the wound base as the wound bed fills in with granulation tissue.
2. Ineffective wound bed response to NPWT:
 - a. Little or no change in wound size at weekly assessment
 - b. Regression in wound bed appearance either slow or rapid
 - c. Wound bed color changes to a dark red or purple color indicating possible trauma to the tissue
 - d. Periwound color changes to a white color indicating maceration possibly due to increased drainage or infection

Preparation of Wound Bed and Peri-Wound Area

1. Prior to applying the Avance® Foam and either Avance® Film, the wound bed and periwound skin should be cleansed in accordance with facility/agency wound care protocols.
2. If there is a significant area of necrotic, non-viable tissue (including eschar, fibrin or slough), debridement should be carried out prior to the application of Avance® NPWT System in accordance with specific facility/agency wound care protocols. Non-viable tissue does not have the same fluid transfer capability of viable tissue and therefore can alter the effect of negative pressure on the underlying area.
3. Sharp edges or bone fragments must be eliminated from the wound area or covered by a wound contact layer (e.g. Mepitel®).

Chapter 3.0:

General Dressing Applications Considerations

Canister Removal Considerations

1. If the pump is in RUN MODE and the LOCK symbol is displayed, first UNLOCK the pump by pressing the UNLOCK button for 3 seconds.
2. Place the pump in STANDBY MODE or OFF.
3. Clamp the canister tubing closed.
4. Remove the Avance® Tubing from the taller open port, by turning counterclockwise, discard as directed by setting protocol.
5. Remove the black sealing plug from the short holding port and place it over the tall open port to prevent leakage of drainage contents.
6. Dispose of the filled canister as directed by setting protocol.

Canister Application Considerations

1. Select the appropriate size canister for the prescribed Avance® Max/Flex pump:
 - a. Avance® Max Pump
 - i. 600ml canister option
 - ii. 1200ml canister option
 - b. Avance® Flex Pump
 - i. 300ml canister
2. Remove the canister from the plastic sealed bag, discard as appropriate.
3. Remove the Styrofoam pin cover from the back of the canister, discard as appropriate.
4. Ensure the pump is OFF or in STANDBY MODE.
5. Ensure the black latch knob of the pump is in the vertical 12:00 to 6:00 position.
6. Align the pin side of the canister to the blue pin receptacle port on the back of the pump.
7. Firmly press the canister onto the pump.
8. Turn the black latch knob horizontal, 9:00 to 3:00 position.
9. The canister is now locked onto the pump.
10. The canister is ready for the Avance® Tubing application to the taller open port.
11. The pump will not function if there is no canister attached to the pump.
12. The canister should be changed at least every 7 days or when full, whichever occurs first.

Changing The Canister Tubing



To change the canister make sure the pump is powered off (if still running, press and hold the UNLOCK button, followed by the RUN/STOP [Power] button).



Clamp the canister tubing and remove by turning counter-clockwise and lifting it out of the tubing port.



Remove the sealing plug from its location on top corner of the canister. Use the plug to seal the tubing port.



Rotate the locking knob 1/4, turn counter-clockwise and remove the canister. Dispose of the used canister according to local clinical waste regulations.



If continuing NPWT, attach a new canister. Remove the styrofoam pin guard on new canister prior to attaching. Attach the canister to the flat face of the pump by matching up the rear location pegs and rotating the locking knob 1/4 turn clockwise to secure. Ensure the canister is correctly located and secured. Otherwise a NO CANISTER message will appear and the pump will not operate.



Attach the tubing to the canister. Push down gently and twist clockwise to lock. Unclamp the canister tubing.



Power on the pump by pressing the RUN/STOP [Power] button. The pump is now in standby mode. Ensure the pressure is set to the prescribed level by pushing the up or down arrows.



Press the RUN/STOP [Power] button again to start the therapy.

Canisters should be replaced as required (e.g. when the canister is full a warning indicator will appear on the display screen and an audible beep will sound) or at least weekly. More information can be located in the Avance® Instructions For Use (IFU) Booklet.

Non-Adherent Wound Contact Layer Considerations

A non-adherent wound contact layer may be indicated for use if there are sutured wounds, exposed veins or arteries, anastomotic sites, tendons or nerves in the wound bed, sharp bone edges or bone fragments. It can also be used over partial thickness burns, partial thickness grafts and full thickness grafts and flaps. Additionally the clinician may use a non-adherent wound contact layer when reduced foam adherence is desired. Dependent on the size of the wound multiple layers can be used over mesh (not exposed abdominal contents or organs) with sufficient overlap of each sheet or in sternal wounds near organs, but should be layered perpendicular to each other to allow fluid flow while reducing risk of foam adhesion to that structure. The size selection should be about 2cm larger than the exposed area and then cut to size if indicated. Clinicians have the option of using a non-adherent wound contact layer that incorporates Safetac® technology.

Mepitel® is an atraumatic wound contact layer coated with Safetac® technology on both sides. When clinically indicated, Mepitel® can be applied to the wound bed to reduce discomfort with foam removal or to protect exposed fragile tissues from the direct positioning of foam.



Mepitel® Applications Considerations

1. Following appropriate wound bed preparation, choose a size of Mepitel® that fits the dimensions of the wound bed or the area that needs to be protected. If required, Mepitel® can be cut to the required size.
2. While holding the larger of the two protective films, remove the smaller one. Moisten gloves to avoid adherence to Mepitel®.
3. Apply Mepitel® over the wound and remove the remaining protective film. If more than one piece of Mepitel® is required to cover the wound, overlap the edges of the dressings. If clinically indicated, more than one layer of Mepitel® can be applied.
4. When Mepitel® is used in conjunction with Avance® NPWT System, it should be changed every 48 to 72 hours, but no less than three times per week, or as instructed by the patient's clinician.*
5. Mepitel® can also be used to wrap around a piece of foam before placement into tunneling or undermined area.

* The clinical indication for the use of Mepitel® with Avance® NPWT System is different from the normal rationale for applying wound contact layers. This is reflected in the increased frequency of dressing change over and above what is normally practiced.

Mepitel® Precaution and Warning Considerations

1. Sharp edges or bone fragments must be eliminated from the wound area or covered by a non-adherent wound contact layer (e.g. Mepitel®).
2. Always document the number of cut pieces of Mepitel® used in the patient's record to ensure that no Mepitel® is left in the wound when the dressing is changed.
3. When used under NPWT dressing application it is removed and changed at each NPWT dressing change to ensure accurate wound content count.
4. Mepitel® is a single use dressing. **DO NOT** re-use Mepitel® once it has been removed from the wound as the performance of the product may deteriorate and cross-contamination may occur.

Use of Other Types of Non-Adherent Contact Layer Considerations

1. Change gloves after contact with petroleum or oil emulsion coated non-adherent contact layers, as this substance can negatively affect the adhesion of the Avance® Film.
2. Apply clean gloves and continue with application of either Avance® Film.

Considerations for Retaining a Negative Pressure Avance® Film Seal:

Foam/PHMB Gauze Application Techniques

1. Avance® Film with Safetac® technology requires a clean dry periwound before placement.
 - a. **Do not** use skin barrier preparation solutions.
 - b. **Do not** picture frame the wound with any materials.
2. Avance® Transparent Film requires a clean dry periwound before placement.
 - a. **Do not** picture frame the wound with any materials.
 - b. A skin barrier preparation solution **can be** used with this film if clinically indicated.
3. If clinically indicated, the tubing of the Avance® ViewPad™ is secured at a point beyond the Avance® Film perimeter so that it does not place a pulling tension on the dressing.
4. Ensure that the foam/PHMB gauze is not over-packed into the wound bed, but cut to a dimension approximately 0.5cm to 1cm larger than the area of the wound to ensure contact with the wound edge once compressed. Add additional pieces of foam for volume to provide a level surface to the skin once compressed.
5. The pump and dressings should be checked every two hours to ensure negative pressure is being applied and the Avance® Film is secure.

Recommended Pressure Settings

Pressure Levels

The pressure level is set according to prescribing physician's instructions, based on the indication, the condition of the wound, the objective of the treatment and which wound dressing type is being used.

For general guidance, pressure settings should be:

- Foam dressings from -80mmHg to -120mmHg
- Antimicrobial (PHMB) Gauze dressings from -60mmHg to -100mmHg with clinical practice average of -80mmHg

Pressure may be altered according to clinical circumstances. The pressure may be adjusted lower for patients if there is impaired nutrition, impaired circulation, pain not relieved by medication, very young or very old in age, bruising at the wound area, active anticoagulation therapy or increased growth of granulation tissue. The pressure may be adjusted lower when NPWT is being used to bolster an allograft or autograft in place. The pressure may be adjusted higher if there is increased exudate, the presence of tunnel(s) or a large wound defect with corresponding high volume. Additionally, consider higher negative pressure especially in treatment of severe infections.^{1,2}

References:

1. Timmers, M.S., et al. The effects of varying degrees of pressure delivered by negative-pressure wound therapy on skin perfusion. *Ann Plast Surg* 2005; 55(6):665-671. 2. Timmers, M.S., et al. Negative pressure wound treatment with polyvinyl alcohol foam and polyhexanide antiseptic solution instillation in post-traumatic osteomyelitis. *Wound Repair Regen* 2009; 17(2):278-286

Recommended Therapy Mode Settings

Continuous and Intermittent Settings

The mode of therapy is directed by the prescribing physician. Considerations for one mode of therapy over another should be based on the characteristics of the wound and the associated condition of the patient. Continuous therapy should be applied for the first 48 hours and reassessed at the first dressing change. Generally, most wounds will continue in the Continuous therapy mode for the duration of the NPWT treatment.

Intermittent therapy can be applied to promote a faster rate of granulation tissue formation, although it is not generally recommended in the following situations:

1. Presence of unstable fractures
2. Presence of infection
3. Presence of tunnels or undermining or sinuses
4. Skin grafts or flaps
5. Moderate to heavy levels of exudate
6. Painful wounds

Intermittent therapy can be associated with negative effects such as heightened pain, sleep disturbance, and sub-optimal exudate management. The pre-set cycle for Intermittent therapy with either the Avance® Max or Flex Pump is 5 minutes on and 2 minutes off.

Dressing Change Frequency

Frequency

1. The first dressing change should occur in 48 hours to assess wound bed response to NPWT.
2. If NPWT is to be continued after the first dressing change assessment, then the subsequent dressing changes should occur every 48 to 72 hours.
3. The dressing should be changed 3 times per week or as directed by the prescribing physician.
4. The frequency of the dressing change is based on the evaluation of the wound bed and goal of treatment.

Dressing Removal Procedure

1. Assess the patient for pain and if indicated medicate the patient as prescribed by the physician.
2. Apply gloves and other Personal Protective Equipment as indicated by the specific protocol/setting.
3. Power down the Avance® Max/Flex Pump to OFF.
4. Allow the wound bed foam to rise.
5. Clamp the Canister Tubing and the Avance® ViewPad™.
6. Disconnect the Avance® ViewPad™ from the Avance® Y-Connector (if applicable) or the Avance® Tubing.
7. Gently stabilize, with one gloved hand, the periwound at a selected starting point and roll the foam away from the wound rim, keeping low to surface.
8. If the Avance® Film is Avance® Transparent Film then gently peel the film up off the skin starting at one corner and working around the dressing. Lift the film off the skin slightly and stretch it parallel over the skin away from the wound to stretch release the adhesive and break the seal.
9. If the Avance® Film is Avance® Film with Safetac® technology then gently peel the film up off the skin starting at one corner and working around the dressing, folding it inward on top of the foam.
10. Gently lift and remove all foam from the wound cavity and any contact layer material if present.
11. Ensure the number of materials removed matches the number of materials placed from the previous dressing application as noted in the patient's medical record.
12. Discard all soiled disposable equipment in accordance with local guidelines/regulations.

NOTE: If the patient experiences pain, as a consequence of dressing adhering to underlying tissue, then moisten the dressing with generous amounts of saline or according to specific care setting wound care protocols. Consider the use of a wound contact layer (e.g. Mepitel®) at next dressing change to minimize pain and trauma.

Precautions and Warnings for Dressing Removal

The clinician must ensure that careful records are kept of the type and number of dressing materials used at each application and re-application of the Avance® NPWT System. Retained dressing materials could cause significant health issues. It is the responsibility of the clinician to ensure that all dressing material is removed at each dressing change.

Chapter 4.0: Specialized Wound Considerations

NPWT can be used with wounds that present the clinician with specific clinical challenges that cannot be overcome by conventional wound management dressings. This chapter identifies such wound types and explains how the Avance® NPWT System can be used to address these challenges.

Sutures/Staples

Sutures and/or staples present in any wound should be covered with a non-adherent / contact layer dressing (e.g. Mepitel®) prior to application of the Avance® NPWT System. This will prevent them from becoming snagged or entangled in the foam during therapy and dressing removal.

Tunnels/Sinus Tracts

Due to the diverse nature of wound development, it is not unusual for wounds to form sinus tracts and tunnels. If untreated, these sinus tracts can form pockets within the wound in which debris can become trapped and bacteria can multiply, providing an environment for prolonged inflammation, infection, abscess formation and wound chronicity¹. The tunnel/sinus tract area requires assessment and should be dressed appropriately before the remaining wound can be dressed. The Avance® NPWT System should not be used to treat unexplored tunnels/sinus tracts. The tunnel/sinus tract can be addressed with a non-adherent contact layer wrapped foam or antimicrobial (PHMB) gauze.

Objectives of Avance® NPWT in tunnel/sinus tract management:

1. Exudate management
2. Tissue stimulation for granulation formation

Reference:

1. World Union of Wound Healing Societies. Principles of Best Practice. A World Union of Wound Healing Societies Initiative. Wound infection in clinical practice. An international consensus. London: MEP Ltd, 2008.

Undermining

Where a tissue void exists beneath the edge of the wound margin, it is important to facilitate drainage and tissue granulation of this area. Some areas of undermining will vary in size and will require careful and complete examination before the application of NPWT. The prescribing physician can address this area with the utilization of Avance® Foam or antimicrobial (Polyhexamethylene Biguanide) gauze. When Avance® Foam is used, care must be taken to ensure that the foam does not adhere within the undermined area. The use of a non-adherent wound contact layer (e.g. Mepitel®) should be strongly considered in this instance. Alternatively, saline moistened antimicrobial (PHMB) gauze can be inserted into the area of undermining with or without a drain, as clinically indicated.

Objectives of Avance® NPWT in undermining management:

1. Exudate management
2. Tissue stimulation for granulation formation

Incisions

Avance® NPWT System can be applied to a closed incision. In this case, the suture or stapled incision area must be covered by a non-adherent contact layer (e.g. Mepitel®) to prevent the structure from becoming adherent within foam upon removal. It has become more common to apply NPWT to an incision on high risk patients. Patients at high risk for complication have been identified in research by Stannard et al. Risk factors include diabetes, obesity, tobacco, hypertension, steroid use history and radiation exposure.

Objectives of Avance® NPWT in incision management¹

1. Protection of the wound bed
2. Splinting of soft tissue
3. Reduction of edema
4. Increased perfusion
5. Stimulation of granulation formation

Reference:

1. Stannard, J.P., et al. Use of negative pressure therapy on closed surgical incisions: a case series. *Ostomy Wound Manage* 2009; 55(8):58-66.

Orthopedic Devices/External Fixators

The presence of orthopedic devices in the wound such as pins, rods or plates is not a contraindication for use with the Avance® NPWT System. NPWT has been used to form granulation tissue in these types of wounds. However, some minor adaptations to the dressing technique will be required.

Each pin site that is present in the wound will need to be sealed. This can be achieved with a number of methods. Foam is normally applied into the wound area and each fixator is treated individually. These fixators can be surrounded in Mepitel® or Mepiseal® wrapped around the fixator and then the foam is applied to the wound cavity and around the fixators. Avance® Transparent Film is recommended as the cover film for use of NPWT treatment in this medical condition. The film is applied in strip method or as large sheets in a Sandwich technique. It may be necessary to lap the film around the fixator and onto its vertical surface.

Objective of Avance® NPWT in orthopedic device/external fixator management:

1. Stimulate granulation formation in the presence of fracture management device

Skin Grafts

Skin grafting is undertaken to restore the integrity and function of the skin, re-establish a barrier to infection, achieve optimum cosmetic appearance and preserve joint mobility.

Objectives of Avance® NPWT in skin graft management:

1. Exudate management
2. Improved blood flow
3. Protect the area from shear forces
4. Wound stabilization, support and stabilize split and full thickness grafts
5. Assist with a rapid revascularization of the newly applied graft¹
6. Provide as effective barrier to bacterial ingress to the wound^{2,3}

Clinical Practice

1. Avance® NPWT System can be utilized during preparation of the wound bed to provide an optimal healing environment (increased vascularization, production of a granular wound bed, management of exudate and wound edema).
2. Ensure that the non-adherent contact layer (e.g. Mepitel®) and the graft material allow for fluid flow in order that the Avance® NPWT System can function properly.
3. Change gloves after contact with petroleum or oil emulsion coated non-adherent contact layers, as this substance can negatively affect the adhesion of the Avance® Films.
4. The therapy mode should be set to Continuous Therapy.
5. This procedure can utilize Avance® Foam or a saline moistened antimicrobial (Polyhexamethylene Biguanide) type gauze with either type of Avance® Film.
6. The dressing should not be removed in a vertical pull manner. The Avance® Film should be pulled in a horizontal/lateral manner in order to release the adhesion and not lift the graft.

7. The primary objective of using NPWT for graft management is not granulation tissue formation, therefore a lower negative pressure setting is suggested. The setting will be determined by wound size, amount of exudate and dressing type.
8. The physician should determine the prescribed pressure setting.
 - a. The range for Avance® Foam is -60mmHg to -120mmHg.
 - b. The range for antimicrobial (PHMB) gauze is -60mmHg to -100mmHg with clinical practice average of -80mmHg
9. Optimal time for application is directly after graft placement.
10. Optimally, the dressing should be left undisturbed for 5–7 days.
11. NPWT should be discontinued once the graft has revascularized.
12. Continued use of NPWT will not promote graft uptake if the graft itself is no longer viable.
13. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Reference:

1. Domingos Hadamitzky, C., et al. Vacuum assisted wound closure in postoperative periprosthetic groin infections: a new gold standard? *J Cardiovasc Surg [Torino]* 2007;48(4):477-483. 2. Chen, Y., et al. Managing deep sternal wound infections with vacuum-assisted closure. *ANZ J Surg* 2008;78(5):333-336. 3. Milne, J., et al. Post-operative incision management made easy. *Wounds UK* 2012;8(4 Suppl):1-4

Skin Flaps

Skin flap procedures are undertaken to restore the integrity and function of the skin, re-establish a barrier to infection, achieve optimum cosmetic appearance and preserve joint mobility.

Objectives of Avance® NPWT in skin flap management:

1. Exudate management
2. Improved blood flow
3. Wound stabilization, support and stabilize the newly positioned tissues
4. Assist with a rapid revascularization of the newly applied grafted flap¹
5. Provide as effective barrier to bacterial ingress to the wound^{2,3}
6. Protect the area from shear forces

Clinical Practice

1. NPWT should be applied immediately after the transposed tissues are surgically positioned to support and maintain the position of the tissues.
2. The pressure settings should be determined by the physician. The typical range for foam is -120mmHg to -150mmHg depending on the tissue type and thickness.
3. Ensure that the suture line is covered with a non-adherent contact layer (e.g. Mepitel®). Change gloves after contact with petroleum or oil emulsion coated non-adherent contact layers, as this substance can negatively affect the adhesion of the Avance® Films.

4. Ensure that the intact skin of the flap and the immediate periwound beyond the suture line is covered with Avance® Transparent Film or Avance® Film with Safetac® technology to protect from the direct contact of Avance® Foam on intact skin.
5. The therapy mode should be set to Continuous Therapy.
6. The dressing should remain intact for 72 hours, or as directed by the prescribing physician.
7. At the first dressing change the wound/flap should be assessed for frequency of subsequent dressing change cycle.
8. The dressing should not be removed in a vertical pull manner. The Avance® Film should be pulled in a horizontal/lateral manner in order to release the adhesion and not lift the flap edges.
9. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

References:

1. Domingos Hadamitzky, C., et al. Vacuum assisted wound closure in postoperative periprosthetic groin infections: a new gold standard? *J Cardiovasc Surg (Torino)* 2007;48(4):477-483. 2. Chen, Y., et al. Managing deep sternal wound infections with vacuum-assisted closure. *ANZ J Surg* 2008;78(5):333-336. 3. Milne, J., et al. Post-operative incision management made easy. *Wounds UK* 2012;8(4 Suppl):1-4

Dehiscid Surgical Wounds

The Avance® NPWT System is indicated for the management of wound breakdown following surgical procedures. The breakdown of surgical wounds is primarily due to wound infection, but can also result from other factors such as excessive tension on the wound edges, hematoma formation, compartment syndrome and tissue necrosis¹. Management of these wounds involves the treatment of any underlying cause, debridement of non-viable tissue, stabilization of the wound, initiation of appropriate antibiotics as required, and preparation of the wound bed, either for secondary surgical closure or healing by secondary intention. The use of the Avance® NPWT System is recommended early in the management of surgical wound breakdown.

Objectives of Avance® NPWT in dehiscid surgical wound management:

1. Stabilization of the wound, facilitating patient movement
2. Prevention of wound retraction
3. Promotion of wound contraction
4. Provision of a closed, moist wound environment
5. Promotion of wound bed perfusion
6. Removal of fluid, exudate and infectious materials
7. Promotion of granulation formation
8. Reduction of peripheral edema

Clinical Practice

1. The physician should determine the prescribed pressure setting and the interface dressing Avance® Foam or an antimicrobial (PHMB) type gauze.
 - a. The range for Avance® Foam is -80mmHg to -120mmHg.
 - b. The range for antimicrobial (PHMB) gauze is -60mmHg to -100mmHg with clinical practice average of -80mmHg.
2. Always consider the anatomical structures present in the wound and, if necessary, use a wound non-adherent contact layer [e.g. Mepitel®] to help provide protection.
3. Dressings should be changed every 48–72 hours, but not less than three times per week, for non-infected wounds; however, infected wounds may require more frequent dressing changes.
4. Consider using multiple wound contact layers [e.g. Mepitel®] over exposed structures such as organs, blood vessels or recent anastomosis.
5. Do not place the Avance® Foam over exposed organs or bowel, the physician must place an appropriate interface, noting that foam placed on mesh can produce granulation tissue on the bowel and result in adhesions.
6. Avance® NPWT can be placed in dehisced abdominal wounds that are covered with mesh and viscera is not exposed.
7. This condition requires regular inspection of the canister volume and exudate quality, contracting the prescribing physician with significant changes.
8. If the dressing is to be applied between and around retention sutures or drain puncture sites ensure complete adhesion to prevent dressing failure.
9. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

References: 1. Fleck T, Fleck M. Negative pressure wound therapy for the treatment of sternal wound infections after cardiac surgery. *Int Wound J* 2012; doi: 10.1111/j.1742-481X.2012.01079.x

Sternal Wounds

The management of sternal wounds poses specific challenges such as instability of the chest wall can seriously affect respiratory function, infection of the sternal cartilage is difficult to manage and the presence of vital organs immediately under (or within) the wound margins.^{1,2}

Objectives of Avance® NPWT in management of sternal wounds:

1. Stabilization of the wound, facilitating optimum respiratory function, patient mobility and comfort
2. Promotion of wound contraction
3. Provision of a closed, moist wound-healing environment
4. Promotion of wound bed perfusion
5. Elimination/removal of fluid, exudate and infectious materials
6. Acceleration of granulation tissue formation

Clinical Practice

1. In wounds where the sternum is intact and stable, with no evidence of bone infection (superficial sternal wounds), management should follow the same lines as for dehisced wounds. Secondary surgical wound closure is rarely attempted and the wound is allowed to heal by secondary intention.
2. In patients with an unstable sternum, deep sternal wound infection or mediastinitis, careful assessment of the wound bed is critical to identify if underlying structures such as the pericardium are present in the lower margins of the wound.
3. If the patient has mediastinitis, certain parameters need consideration: sternal wires may be required to be removed, debridement of bone may be required prior to placement of NPWT; and systemic antibiotics may also be required. A specialised cardiothoracic physician should be involved with the assessment and application of the dressing.
4. The use of the Avance® NPWT System should not be applied directly onto any underlying organs. If NPWT is considered appropriate by the patient's surgeon, underlying structures must be protected by adequate non-adherent wound contact layers under the foam dressing.
5. The use of the Avance® NPWT System must be monitored closely, particularly in patients with unstable sternal wounds.
6. The Avance® NPWT System should be set to the continuous therapy mode of negative pressure throughout treatment to assist in stabilization of the chest wall.
7. During the first application, patient tolerance to the effects of NPWT should be closely monitored and pressure levels adjusted accordingly.
8. The continuous therapy mode application of negative pressure causes the wound edges to pull together, providing a 'splinting' effect, which may impart mobility and comfort to the patient.
9. Dressing changes should be undertaken every 48–72 hours, but not less than three times per week, for non-infected wounds, but more frequently if deemed necessary by the treating clinician.
10. Consider using multiple non-adherent wound contact layers (e.g. Mepitel®) over exposed structures such as organs, blood vessels or recent anastomosis.
11. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

References:

1. Milne, J., et al. Post-operative incision management made easy. *Wounds UK* 2012;8(4 Suppl):1-4
2. World Union of Wound Healing Societies. Principles of Best Practice. A World Union of Wound Healing Societies Initiative. Wound infection in clinical practice. An international consensus. London: MEP Ltd, 2008

Open Abdomen Wounds

A number of surgical emergencies, including peritonitis, intra-abdominal trauma and mesenteric ischemia, can result in wounds that cannot be completely closed by traditional techniques. "Open abdomen" is defined as the inability to close the abdominal fascia after laparotomy. Situations where open abdomen can occur include:

1. In the operating room the surgeon may be unable to close the patient's wound due to edema
2. The surgeon closes the wound but there is subsequent dehiscence of the wound
3. There is a need for the surgeon to undertake further surgical procedures and it is deemed preferable to delay closure of the wound until a later time
4. The patient displays signs or is assessed at risk of developing intra-abdominal hypertension and/or abdominal compartment syndrome
5. In the presence of infection and to allow for open drainage

In some cases, the surgeon must leave the wound open until surgical closure is possible. In other cases, wounds may be managed and allowed to close by secondary intention. This may take many months to occur. Open abdomen wounds are classified as superficial, deep, or complex.

Superficial Open Abdominal Wound

In wounds where the abdominal muscle and fascia remains intact, the wound is classified as 'superficial' and can be treated as outlined in an earlier section of these guidelines for treating dehisced surgical wounds.

Clinical Practice

1. When using Avance® Foam consider negative pressure settings between -80mmHg and -120mmHg, however the prescribing physician will determine the pressure setting.
2. When using an antimicrobial (Polyhexamethylene Biguanide) gauze consider negative pressure settings between -60mmHg and -100mmHg with clinical practice average of -80mmHg. However, the prescribing physician will determine the pressure setting. Ensure that the drain does not come into contact with exposed organs or vessels.
3. Closely monitor the patient and wound progress. If there are changes in exudate volume or type (particularly fecal matter), the surgeon should be contacted immediately.
4. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Deep Open Abdominal Wound

If deeper structures such as muscle and fascia are visible in the wound, the wound is described as 'deep'. Deep abdominal wounds may also be treated as outlined in an earlier section of these guidelines for treating dehisced wounds; however, care must be taken to avoid trauma to the fascia, which could result in the formation of fistulas. For any exposed fascia, the use of a non-adherent wound contact layer (e.g. Mepitel®) may be considered to minimize adhesion and damage.

Where the fascia is not intact and organs are exposed in the abdominal cavity, the wound is referred to as 'complex'. In these cases, patients are often managed using a damage control approach; the wound is kept open to allow subsequent re-exploration or to prevent elevated intra-abdominal pressure.¹

Reference: 1. Kaplan, M. Negative pressure wound therapy in the management of abdominal compartment syndrome. *Ostomy Wound Manage* 2004;50(11A Suppl):20S-25S.

Acute & Traumatic Wounds/Partial Thickness Burns

Generally, acute (traumatic) wounds are surgically closed with sutures, staples or tissue adhesives at, or soon after, injury. However, in some cases, acute wounds can show wound characteristics, which prevent their primary closure; wounds may be contaminated with debris, carry a high bacterial load or there may be poor wound bed vascularity. In such cases, delayed closure or healing by secondary intention may be indicated. The challenges in such circumstances are to control and manage wound exudate, bacterial burden and provide an optimal, moist wound-healing environment in which vascularized granulation tissue can develop. The role of negative pressure wound therapy for the partial thickness burn is that of graft securement and promotion of revascularization – refer to the previous section on Skin Grafts^{1,2,3}

Objectives of Avance® NPWT in management of acute & traumatic wounds:

1. Promotion of granulation tissue formation
2. Promotion of perfusion
3. Maintenance of a closed-wound environment
4. Removal of edema
5. Removal of exudate and minimizing bacterial colonization
6. Assistance with wound contraction and closure
7. Assist with a rapid revascularization of the newly applied graft⁴

Clinical Practice

1. The therapy mode can be continuous or intermittent, the latter is dependent upon patient pain level and tolerance of cyclic change.
2. Dressing changes should occur every 48–72 hours, but not less than three times per week, for non-infected wounds, but may have to be performed more frequently if infected.

3. It is imperative that tendons, ligaments, blood vessels, organs and nerves are completely covered and protected with a non-adherent wound contact layer (e.g. Mepitel®) before applying the Avance® NPWT System.
4. Acute wounds with exposed bone or fractures can benefit from the use of the Avance® NPWT System by managing exudate, promoting wound granulation and controlling bacterial bioburden. All fractures should be stabilized before application of NPWT. Sharp edges or bone fragments must be eliminated from the wound area or covered by a non-adherent wound contact layer (e.g. Mepitel®).
5. The physician should determine the prescribed pressure setting and the interface dressing Avance® Foam or an antimicrobial (PMHB) type gauze.
 - a. The range for Avance® Foam is -80mmHg to -120mmHg but may be increased incrementally for heavily exuding wounds up to -175mmHg until the exudate reduces over time.
 - b. The range for antimicrobial (PHMB) gauze is -60mmHg to -100mmHg with clinical practice average of -80mmHg.
6. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

References:

1. Huang C. et al. Effect of negative pressure on wound healing. *Current problems in surgery* 51 (2014) 301-331
2. Shweiki, E., Gallagher, K.E., Negative pressure wound therapy in acute, contaminated wounds: documenting its safety and efficacy to support current global practice. *Int Wound J* 2012 Mar 15. doi: 10.1111/j.1742-481X.2012.00940.x. [Epub ahead of print].
3. Hanasono, M.M., Skoracki, R.J. Securing skin grafts to microvascular free flaps using the vacuum-assisted closure (VAC) device. *Ann Plast Surg* 2007 May;58(5):573-576.
4. Domingos Hadamitzky, C., et al. Vacuum assisted wound closure in postoperative periprosthetic groin infections: a new gold standard? *J Cardiovasc Surg [Torino]* 2007;48(4):477-483.

Chronic Wounds

Wounds can become chronic and slow to heal for a number of systemic and local reasons. Poor vascularization, the presence of wound edema, high levels of bioburden and the presence of high levels of pro-inflammatory cytokines and metalloproteases have all been indicated to have a negative impact on wound healing¹. NPWT has been demonstrated to have a positive effect on wounds that have become static by altering the local wound environment. It is important to have a clear objective treatment goal when using NPWT with a chronic wound. This should be reviewed on a regular basis. If the wound has not progressed toward the plan of treatment goal within a two-week period then the wound should be assessed for potential limiting factors and resolutions, such as nutrition, hydration and positioning.

Objectives of Avance® NPWT in management of chronic wounds:

1. Assistance in the formation of granulation tissue
2. Removal of edema and exudate
3. Promotion of perfusion
4. Assistance in wound contraction and closure
5. Provision of a closed, moist wound healing environment

Clinical Practice

1. Negative Pressure settings should be -80mmHg to -120mmHg for Avance® Foam, unless otherwise directed by the prescribing physician.
2. Negative pressure should be delivered in the Continuous mode for the first 48–72 hours; depending on the treatment goal for NPWT, consider changing to Intermittent mode if the local wound condition permits and the patient is tolerant of the cyclic change.
3. Dressing changes should occur every 48–72 hours, but not less than three times per week, for non-infected wounds, but may have to be performed more frequently if infected.
4. The wound should be regularly assessed for progress towards the desired treatment goal. Once the treatment goal has been met, then NPWT should be discontinued.
5. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Reference:

1. Andros, G., et al. Consensus statement on negative pressure wound therapy for the management of diabetic foot wounds. Wounds 2006

Pressure Injury

Pressure injuries are frequently found to be chronic in nature and may take many months to heal. Stage 1 and 2 pressure injuries normally heal with the initiation of pressure relief, maintenance of good nutritional standards and the use of appropriate wound treatment protocols. These types of pressure injury are therefore NOT suitable for treatment with NPWT. In the treatment of Stage 3 and 4 injuries (full-thickness pressure injuries) debrided Unstageable injuries and evolved Deep Tissue Injuries, the Avance® NPWT System can be successfully employed as a definitive treatment or as a means of optimizing the wound bed, aiding in the promotion of granulation tissue formation.²

Objectives of Avance® NPWT in management of pressure ulcers:

1. Promote the formation of granulation tissue
2. Removal of edema and exudate management
3. Promotion of dermal perfusion
4. Promote wound contraction and closure
5. Provide a closed, moist wound-healing environment
6. Preparation of the wound bed prior to possible surgical intervention such as a rotational flap, free flap or skin grafting

Clinical Practice

1. Care must be taken to ensure that the placement of the Avance® ViewPad™ does not increase the risk of further tissue damage. Many pressure injuries develop over bony prominences and so it may be advisable to use a Bridged technique application to move Avance® ViewPad™ away from high-risk structures/areas.

2. In deep (Stage 4) pressure injuries, bone may be visible in the wound. This should be covered with a non-adherent wound contact layer (e.g. Mepitel®) prior to application of the foam dressing.
3. Any tunneling or undermining should be managed, as described in earlier sections of these guidelines.
4. Negative pressure settings should be set at -120mmHg for Avance® Foam. However, the pressure setting used should be determined and adjusted, as appropriate, by the prescribing physician.
5. Dressing changes should be performed every 48–72 hours, but not less than three times per week, for non-infected wounds, and may have to be performed more frequently if infected.
6. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Reference:

1. NPUAP Consensus Conference April 2016
2. Gupta, S., Ichioka, S. Optimal use of negative pressure wound therapy in treating pressure ulcers. *Int Wound J* 2012 August;9(Suppl.1):8-16.

Diabetic Foot Ulcers (DFU's)

Ulceration of the foot in the patient with diabetes is a major cause for non-traumatic limb amputation. Management of the DFU is centered on a multidisciplinary approach for the prevention of ulceration and care; however, ulceration remains an all-too-frequent complication. Deeper ulcers are associated with a higher incidence of osteomyelitis and chronic non-healing.⁸⁰ Two common Diabetic Ulcer classification tools are the Wagner Classification System for Diabetic Foot Ulcers, and the University of Texas (UT) Diabetic Foot Classification System. The Wager Scale grades an ulcer from Grade 0-Intact skin to Grade 5-Full-foot gangrene. The UT system classifies an ulcer on 2 parameters: Stage A-D and Grade 0-III. An ulcer can progress from A-0 which is a pre-ulcerative or post-ulcerative foot for risk of further ulceration condition to the farthest end of the system Stage D-III which is presence of ischemia and infection. Grades 0 and I ulcers respond to standard methods of debridement, wound management and off-loading. However, in the treatment of Stage II–V (Wagner scale) and II–III (UT scale) ulcers, the Avance® NPWT System can be used as a definitive treatment.

Objectives of Avance® NPWT in management of diabetic foot wounds:

1. Promote the formation of granulation tissue
2. Removal of edema and exudate management
3. Promotion of dermal perfusion
4. Promote wound contraction and closure
5. Provide a closed, moist wound-healing environment
6. Reduce risk of maceration of surrounding peri-wound area

Clinical Practice

1. Foam-based Avance® NPWT System dressings can be successfully used to treat DFU's.
2. For Avance® Foam, a setting range between -100mmHg to -150mmHg should be set, or as directed by the physician.
3. If bone is present in the wound (or can be detected on probing the wound bed), the physician should rule out the possibility of osteomyelitis prior to application of the Avance® NPWT System to the wound. Debridement of infected bone may be required and the initiation of appropriate antibiotic therapy initiated.
4. Avance® NPWT System can be applied if osteomyelitis is being treated with antibiotics.
5. If healthy bone is present within the wound, this should be covered with a non-adherent wound contact layer (e.g. Mepitel®) prior to application of the Avance® NPWT System foam dressing.
6. The poor sensory function (neuropathy) of many individuals with diabetes may mask the signs of pressure (such as discomfort). It is important to ensure that the placement of the Avance® ViewPad™ does not cause pressure to the wound or surrounding skin. Bridged technique application can be employed to divert drainage to areas of low risk.
7. The circulatory and nervous system changes as a result of the Diabetic disease process combined with the natural forces of gravity often place the patient at risk for periwound maceration.
8. Dressing changes should be performed every 48–72 hours, but not less than three times weekly for non-infected wounds, but may need to be performed more frequently if infected.
9. When placing the film on the wound, it should never be wrapped circumferentially around the limb or digit as this may lead to a tourniquet effect. If the patient experiences any tingling or numbness during NPWT, this should be investigated. NPWT should be discontinued until the issue is resolved.
10. Patients with DFU's should be assessed for a foot offloading device. Positioning of the tubing needs to be carefully planned. Each device will be different and a Bridged technique application might be the optimal technique to ensure that the surrounding intact skin is not compromised.

Reference:

1. Bryant, R.A. [2000]. Lower extremity ulcers of vascular etiology. In Bryant, R.A. (Ed.), *Acute and Chronic Wounds Nursing Management* 3rd Ed. (pp 277-298). St. Louis, MO: Mosby.

Venous Leg Ulcers

Venous ulcers occur as a result of impaired return of venous blood from the tissues to the heart, or chronic venous insufficiency (CVI) ulcers occur as a result of skin and tissue changes caused by CVI and ambulatory venous hypertension. Management of patients with venous ulcers must include measures to optimize wound healing through reduction of edema, prevention of complications, and appropriate topical therapy.¹ These shallow ulcers are frequently filled with adherent yellow slough which must be debrided prior to application of Avance® NPWT System dressings. Frequently NPWT is combined with therapeutic compression dressings. In this circumstance the Avance® ViewPad™ should be bridged above the height of the compression wrap dressing. Once the wound bed is prepared for healing the focus is exudate management and a semi-occlusive, moist environment that can protect the wound from infection. Patients with venous leg ulcers are at risk for both irritant contact dermatitis and allergic contact dermatitis.¹

Objectives of Avance® NPWT in management of venous leg ulcers:

1. Promote the formation of granulation tissue
2. Removal of edema and exudate management
3. Promotion of dermal perfusion
4. Promote wound contraction and closure
5. Provide a closed, moist wound-healing environment
6. Reduce risk of maceration of surrounding periwound area

Clinical Practice

1. At initial placement it is important to thoroughly clean the periwound, as microscopic weeping through the skin can leave crusting residue on the skin.
2. The periwound skin may be impaired due to chronicity of CVI changes therefore ensure that foam does not overlap onto intact skin.
3. The pressure may set within a range of -120mmHg to -175mmHg or as directed by the prescribing physician.
4. Avance® NPWT dressings can be combined with compression therapy products by using a Bridging technique to place the Avance® ViewPad™ above the proximal level of the compression dressing.
5. An experienced compression therapy clinician may be able to perform a compression wrap incorporating the Avance® ViewPad™ base within the dressing while allowing the tubing to exit at the wound level and the be secured along the outside of the compression wrap.

Reference:

1. Bryant, R.A. (2000). Lower extremity ulcers of vascular etiology. In Bryant, R.A. [Ed.], *Acute and Chronic Wounds Nursing Management* 3rd Ed. [pp 277-298]. St. Louis, MO: Mosby.

Enteric Fistula

The Avance® NPWT System can be used under specific conditions to promote wound closure when an enteric fistula is present. An enteric fistula communicates between the lumen of the gastrointestinal tract and the skin. A fistula can be classified in several ways: anatomically either simple or complex; location either internal or external or by output either high, medium or low.^{1,2} The Avance® NPWT System can be utilized for the complex acute fistula and the complex chronic fistula. A complex acute fistula has no evidence of epithelial tissue at the opening. The opening must be easily identified, there is minimal to moderate amounts of effluent, which is usually thin to slightly viscous consistency. The complex chronic fistula has epithelial tissue identified at the opening, and the opening can be identified within the wound bed. Both types of fistulas are medically managed through Total Parental Nutrition (TPN) and Nothing by Mouth (NPO)

Objectives of Avance® NPWT in management of enteric fistula within the wound bed:

1. Facilitate all modes of action of negative pressure wound therapy for wound healing and secondarily promote closure of the complex acute enteric fistula.
2. Facilitate all modes of action of negative pressure wound therapy for wound healing in preparation for surgical repair of the complex chronic enteric fistula.

Clinical Practice

1. The acute fistula is identified and separated by a different Avance® Film but still incorporated into the overall dressing, the pressure is increased until no effluent is present in the tubing to a maximum of -180mmHg or as directed by the prescribing physician.
2. The chronic fistula is identified, separated from the wound bed and the dressing is constructed around the opening for the application of an ostomy appliance or fecal incontinence bag.
3. The management of fistulas within a wound bed should be performed by experienced clinicians.
4. Refer to **Chapter 5.0** for dressing applications.

NOTE: This condition requires an experienced wound care clinician. Fistula Location and Fluid Description and Considerations:

1. Fistulas in the beginning part of the intestines produce thinner, more caustic and higher output.
2. Large volumes of thin fluids
3. Sediment Laden Output-Consider using Avance® Foam with pouching technique.

Contraindication for Avance® NPWT:

The application of Avance® NPWT on non-enteric or unexplored fistulas

Reference:

1. Bryant, R.A. [2000]. Management of drain sites and fistulas. In Bryant, R.A. (Ed.), *Acute and Chronic Wounds Nursing Management* 3rd Ed. (pp 490-500). St. Louis, MO: Mosby. 2. Birke-Sorensen, H., Malmso, M., Rome, P., Hudson, D., & Krug, E. (2011). Evidence-based recommendations for negative pressure wound therapy: Treatment variables (pressure levels, wound filler and contact layer) Steps towards an international consensus. *Journal of Plastic, Reconstructive & Aesthetic Surgery* 64, 51e516.

Chapter 5.0: Dressing Application Guides

General Application Guides

NOTE: If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Avance® Foam Dressing Kit with Avance® Film with Safetac® Technology Considerations

Precautions:

1. Do not cut the foam over the wound site, as fragments may fall into the wound.
2. Do not overlap the foam onto intact skin.
3. Do not pack excessive foam into any area of the wound or use excessive force as this may damage tissue, hinder exudate removal or hinder delivery of negative pressure.
4. Do not place foam into an unexplored tunnel or fistula.
5. The number of foam pieces (and if indicated non-adherent contact layer) placed in the wound should be recorded in the patient's medical record to ensure that nothing is left in the wound when the dressing is changed.
6. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

General Application Guide

Avance® Film with Safetac® technology

Including Avance Foam Dressing Kit and Avance ViewPad™



Avance® *Safetac*
TECHNOLOGY


Mölnlycke®

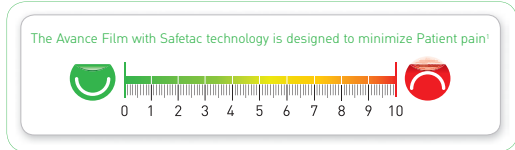
The Avance® Film with Safetac® technology promotes patient comfort by reducing pain, erythema, skin stripping at the dressing change¹ and is designed for use on the patient with a dry periwound.

NOTE: The term **Safetac film** referenced below is the abbreviated form of **Avance Film with Safetac technology**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed as instructed by the clinician.
- D. Cleanse the periwound skin and thoroughly dry.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.



1A



1B



1C



1D

2. Protect

- A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.



2A

For patients with multiple wounds or to off-set the ViewPad from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide for additional technique options.

3. Apply

A. Cut the foam, away from the wound, to the appropriate size corresponding with the dimensions of the wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

B. Place the foam in the wound.

C. Dry the periwound skin before applying the Safetac® film.

D. Cut the Safetac film to the appropriate size, allowing an overlap of 3-5 cm onto the surrounding skin.

E. Remove the release liner in the middle of the Safetac film.

F. Apply the Safetac film and cover the foam. Now remove the outer release liners of the Safetac film.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

G. Cut a hole in the Safetac film approximately 1 cm in diameter at distal portion of the dressing, is the preferred location of the ViewPad™. Ensure that the ViewPad is supported by the foam.

H. Remove the release liner of the ViewPad and place it directly over the cut hole and press firmly.



3A



3B



3C



3D



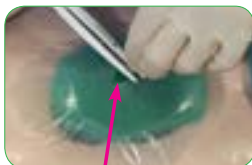
3E



3F

Remove
release liners

Allow 3-5 cm overlap
onto the surrounding skin.



3G

1 cm hole



3H

4. Commence

A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

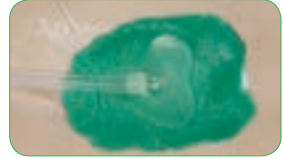
NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Best Practice Tips for the Avance Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. [2008]. Evidence review: the clinical benefits of Safetac® technology in wound care. *Journal of Wound Care*.

Avance® Foam Dressing Kit with Avance® Transparent Film Considerations

Precautions

1. Do not cut the foam over the wound site, as fragments may fall into the wound.
2. Do not overlap the foam onto intact skin.
3. Do not pack excessive foam into any area of the wound or use excessive force as this may damage tissue, hinder exudate removal or hinder delivery of negative pressure.
4. Do not place foam into an unexplored tunnel or fistula.
5. The number of foam pieces (and if indicated non-adherent contact layer) placed in the wound should be recorded in the patient's medical record to ensure that nothing is left in the wound when the dressing is changed.
6. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

General Application Guide

Avance® Transparent Film

Including Avance Foam Dressing Kit and Avance ViewPad™



Avance®


Mölnlycke®

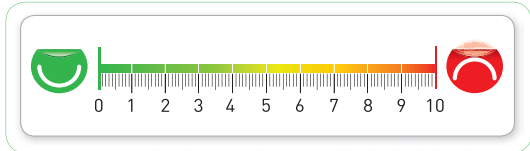
The Avance® Transparent Film has a gentle adhesive backing and is designed for use on the patient with a moist periwound, increased natural skin oils, or difficult anatomical geometries.

NOTE: The term **Transparent film** referenced below is the abbreviated form of **Avance Transparent Film**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed as instructed by the clinician.
- D. Cleanse the periwound skin and thoroughly dry.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing kit.



1A



1B



1C



1D

2. Protect

- A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Transparent film, the adhesion level on the skin will be negatively affected.



2A

3. Apply – Option 1 – Whole sheet

- A. Cut the foam, away from the wound, into an appropriate size corresponding with the dimensions of the wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

- B. Place the foam in the wound.



3A



3B

Apply – Option 1 – Whole sheet *(continued)*

C. Cut the Transparent film to the appropriate size, allowing an overlap of 3–5 cm onto surrounding skin.



3C

D. Remove the protective paper at the green bar labeled "1". Without stretching the Transparent film, place it over the wound and periwound area.



3D

E. Remove the backing release liner labeled "2".



3E

NOTE: Do not stretch the Transparent film as it may affect the adhesion to the skin once negative pressure is applied.



3F

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Transparent film.

F. Cut a hole in the Transparent film approximately 1 cm in diameter at the distal portion of the dressing. Ensure that the ViewPad™ is supported by the foam.



3G

G. Remove the release liner of the ViewPad and place it directly over the cut hole and press firmly.

For patients with multiple wounds or to off-set the ViewPad from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide for additional technique options.

Apply – Option 2 – Strips

H. Cut the Transparent film into smaller pieces appropriate to the size of the wound.



3H

I. To expose the adhesive side, remove the protective paper at the green bar labeled number "1".



3I

J. Start to cover the wound with the Transparent film.



3J

K. Remove the backing release liner labeled "2". Continue to place other small pieces over the wound with the same technique. Work your way around the wound to cover it completely.



3K

Apply – Option 2 – Strips *(continued)*

NOTE: Do not stretch the Transparent film as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Transparent film.

- L. Cut a hole in the Transparent film approximately 1 cm in diameter at the distal portion of the dressing, if appropriate. Ensure that the ViewPad™ is supported by the foam.
- M. Remove the release liner of the ViewPad and place it directly over the cut hole and press firmly.



3L



3M

4. Commence

- A. Connect the ViewPad tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

- B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Avance® Gauze Dressing Kit with Avance® Film with Safetac® Technology Considerations

Benefit of Antimicrobial Gauze Impregnated with Polyhexamethylene Biguamide (PHMB) when used in NPWT¹

1. Quick application
2. Antimicrobial (PHMB) gauze is easy to remove, no tissue in-growth
3. No disruption to wound bed
4. Easy conformability to complex wound surfaces
5. Can be used on all sizes and types of wounds
6. Can be used in tunnels/tracts and areas of undermining
7. Can be used in large irregular wounds
8. Chariker –Jeter (1989) dressing method of NPWT utilizes an anti-microbial dressing (AMD) which is a gauze impregnated with Polyhexamethylene biguamide (PHMB) and is used with a silicone drain.
9. Antimicrobial (PHMB) Gauze Therapy range -60mmHg to -100mmhg with clinical practice average of -80mmHg.
10. There is less pain associated with antimicrobial (PHMB) gauze at the wound interface juncture due to no in-growth of granulation tissue into the antimicrobial (PHMB) gauze.
11. The initial dressing change should take place within 48 hours.
12. Depending on patient status and clinical judgment, after the initial dressing change the following dressings can be changed 3 times a week if dressing integrity can be maintained and there is no evidence of infection.

References:

1. Hurd T, Chadwick P, Cote J, et al. Impact of gauze-based NPWT on the patient and nursing experience in the treatment of challenging wounds. *Int Wound J* 2010; Jul 29

Precautions

1. Do not overlap the moistened antimicrobial (PHMB) gauze onto intact skin.
2. Do not pack excessive antimicrobial (PHMB) gauze into any area of the wound or use excessive force as this may damage tissue, hinder drainage removal or hinder delivery of negative pressure.
3. Do not place antimicrobial (PHMB) gauze into an unexplored tunnel or fistula.
4. The number of antimicrobial (PHMB) gauze pieces placed into the wound should be recorded in the patient's medical record to ensure that nothing is left in the wound when the dressing is changed.
5. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Application of Antimicrobial (PHMB) Gauze Based Dressing with Avance® NPWT System

Option 1 - Avance® View Pad™

Option 2 - Drain (Flat or Channel)

Option 1: Antimicrobial (PHMB) Gauze Dressing with Avance® ViewPad™ Placement

General Application Guide

PHMB Gauze

Including PHMB Gauze Dressing Kit, Avance Film with Safetac® technology and Avance ViewPad™



The PHMB Gauze is impregnated with 0.2% polyhexamethylene biguanide (PHMB). PHMB inhibits the growth of bacteria within the dressing. The PHMB Gauze should always be moistened prior to application and should only be cut when moistened.

NOTE: The term **Safetac® film** referenced below is the abbreviated form of **Avance Film with Safetac technology**. The term **foam** is the abbreviated form of **foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.

B. Prepare all dressing materials.

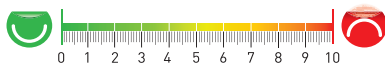
NOTE: Only use the sterile PHMB Gauze supplied in the dressing kit.

C. Cleanse the wound bed as instructed by the clinician.

D. Cleanse the periwound skin and thoroughly dry.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the PHMB Gauze dressing

The Avance Film with Safetac technology is designed to minimize Patient pain¹



1A



1B



1C



1D

The Safetac film promotes patient comfort by reducing pain, erythema, skin stripping at dressing change¹ and is designed for use on the patient with a dry periwound.

2. Protect

A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.



2A

For patients with multiple wounds or to off-set the ViewPad from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide, for additional technique options.

3. Apply

A. Moisten the PHMB Gauze with sterile or saline water (not included in the Avance Gauze Dressing Kit). Squeeze out any excess sterile or saline water from the PHMB Gauze. Ensure that the PHMB Gauze is moist and not saturated.

B. For a wound with a tunnel: Open up the moistened PHMB Gauze to create a cylindrical shape to act as a wick. Insert this moistened PHMB Gauze wick into the end of the tunnel. Gently withdraw the PHMB Gauze wick 0.5-1 cm from the end of the tunnel. It is important not to overstuff the tunnel as this could keep the tunnel open and prevent healing.

C. Next, place the rest of the moistened PHMB Gauze in areas of undermining.

D. Fill the rest of the wound with the moistened PHMB Gauze without overpacking the wound. Ensure that all PHMB Gauze pieces communicate.

E. Dry the periwound skin before applying the Safetac® film. Cut the Safetac film to the appropriate size allowing an overlap of 3-5 cm onto the surrounding skin.

F. Remove the release liner in the middle of the Safetac film.

G. Apply the Safetac film and cover the PHMB Gauze. Now remove the outer release liners of the Safetac film.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

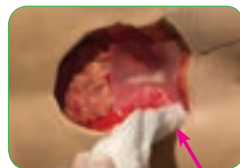
H. Cut a hole in the Safetac film approximately 1 cm in diameter at the distal portion of the dressing is the preferred location of the ViewPad™.

I. Ensure that the ViewPad is supported on the PHMB Gauze.

J. Remove the release liner on the ViewPad and place it directly over the cut hole and press firmly.



3A
Undermining



3B
Tunnel



3C
Tunnel



3D



3E



3F



3G



3H



3I



3J

To prevent fraying of the PHMB Gauze, cut when moistened.

4. Commence

A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the PHMB Gauze is -60 mmHg to -80 mmHg.

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Best Practice Tips for the Avance Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Option 2: Flat or Channel Drain Placement

Precautions

1. Do not overlap the moistened antimicrobial (PHMB) gauze onto intact skin.
2. Do not pack excessive antimicrobial (PHMB) gauze into any area of the wound or use excessive force as this may damage tissue, hinder drainage removal or hinder delivery of negative pressure.
3. Do not place antimicrobial (PHMB) gauze into an unexplored tunnel or fistula.
4. The number of antimicrobial (PHMB) gauze pieces placed into the wound should be recorded in the patient's medical record to ensure that nothing is left in the wound when the dressing is changed.
5. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

General Application Guide

PHMB Gauze with Drain

Talley Gauze Wound Care Set - Flat Drain, Talley Gauze Wound Care Set - Channel Drain
For use with the Avance® Flex NPWT System

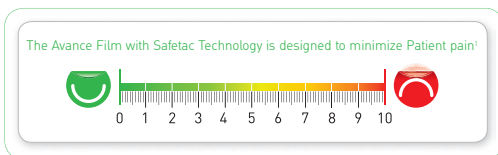


The Talley Gauze kit is impregnated with 0.2% polyhexamethylene biguanide (PHMB). PHMB inhibits the growth of bacteria within the dressing. The PHMB Gauze should always be moistened prior to application and should only be cut when moistened.

Note: The term Safetac® film referenced below is the abbreviated form of Avance® Film with Safetac® technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance ViewPad.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed as instructed by the clinician.
- D. Cleanse the periwound skin and thoroughly dry.
- E. Moisten the PHMB gauze with sterile water or saline. Remove the excess saline from the PHMB gauze prior to using. Only use sterile PHMB gauze in the NPWT dressing.
- F. Cut the drain to a length that crosses the wound bed but is 1-2 cm short from the opposite wound edge.



1A



1E



1F

2. Protect

- A. Cover any areas of the wound that need protection with Mepitel®.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to the dressing application, the adhesion level on the skin will be negatively affected.



2A

Mepitel® is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance® NPWT system. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal¹ or to protect exposed fragile tissue from direct positioning of NPWT such as in areas of undermining and tunnel(s).

3. Apply - Talley or Channel Drain Placement

- A. Lay a single layer of fluffed, saline - moistened PHMB gauze in the wound bed and place the drain on top of the gauze, ensuring that the drain is approximately 1 cm (1/2") from the wound edge.

NOTE: Alternatively, the saline-moistened gauze can be wrapped around the drain, if more suited to the wound type.

- B. Cover the drain with the remaining fluffed, moistened PHMB gauze (gauze-drain-gauze sandwich) but do not over stuff. Remember fluff the gauze; do not pack the gauze.

- C. Cut the gel pad in half and place one half at wound edge on the periwound where the tubing will exit the wound.

- D. Place the drain hub onto the gel pad and then place the second piece of gel pad over it to secure/sandwich in place.

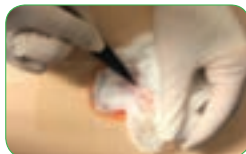
- E. Apply the cover film extending 3-5 cm onto intact skin and past the adhesive gel patch. Gently pinch around the drain where it exits the wound.



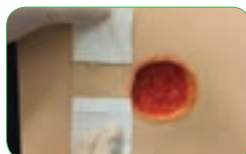
3A



Gauze wrap



3B



3C



3D



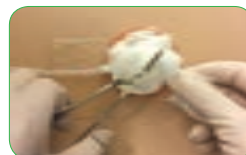
3E

3. Apply - Addressing the Talley with a 10 French Flat Drain

- F. Open up the moistened PHMB gauze to create a cylindrical shape to act as a wick. Insert this moistened PHMB gauze wick into the end of the tunnel. Withdraw the PHMB gauze wick approximately 1 cm from the base of the tunnel. It is important not to overstuff the tunnel as this could keep the tunnel open and prevent healing.



3F



3G

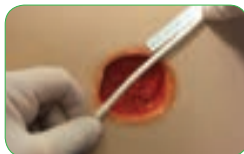
- G. Proceed with the drain application technique discussed in steps 3A-3E.

NOTE: Never place a 10 French Flat drain directly into a tunnel.

To prevent fraying of the PHMB Gauze, cut when moistened.

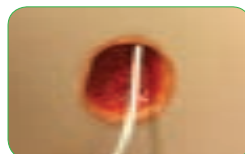
3. Apply - Addressing a Tunnel with the Gauze and Talley French Channel Drain

H. Cut the white part of the channel drain to the measurement of the tunnel plus enough additional length so that the open channels of the drain extend from the center of the wound into the distal end of the tunnel.



3H

I. Gently insert the drain into the tunnel until the base is detected then withdraw the drain approximately 1 cm, leaving the distal end of the tunnel clear.



3I

NOTE: For larger tunnels, it may be necessary to wrap the moistened PHMB gauze around the channel drain.



3J

J. Wrap the moistened PHMB gauze around the drain as required and insert into the tunnel area.

K. Proceed with the drain application technique discussed in steps 3A-3C.

4. Commence

A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the PHMB Gauze is -60 mmHg to -80 mmHg.



4B

B. Once the negative pressure is applied, the dressing will collapse. Inform the patient that there may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing (where the drain exits the wound), the canister and tubing connections for possible leaks and correct accordingly.

For further information on the Avance NPWT System, including safety considerations, see the Instructions For Use for the Avance Pump, Mepiseal®, Avance Dressings, and the Avance NPWT Clinician Guidelines or call the Mölnlycke Clinical Support line at 1-800-780-1228 option 3, then option 1.

Bridging Technique Application Guide

Special Considerations:

1. When bridging with Avance® Film with Safetac® technology; the bridging film strips should only be cut overall 1cm wider than the width of the bridging foam strip. The Avance® Film with Safetac® technology, should extend 5cm past the bridging film strips to allow it to adhere to the topography of the intact skin.
2. The bridging application is utilized to relocate the Avance® ViewPad™ to an optimal location. This is done to promote patient comfort and/or prevent tissue damage.
3. The bridging application can be utilized to connect multiple wounds with similar etiology.
4. NEVER bridge an infected wound to a non-infected wound.

Advanced Technique Application Guide

Bridging

Including Avance® Foam Dressing Kit, Avance Film with Safetac® technology and Avance ViewPad™



The Bridging technique is used to treat multiple wounds with one dressing kit, or to off-set the Avance® ViewPad™ in narrow wounds or from a pressure point.

NOTE: Never bridge a non-infected wound with an infected wound or bridge wounds with different etiologies as this may put wounds at risk for cross contamination.

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance Film with Safetac® technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad is the abbreviated form of Avance View Pad.

1. Prepare

A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.

B. Prepare all dressing materials.

C. Cleanse the wound bed as instructed by the clinician.

D. Cleanse the periwound skin and thoroughly dry.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the foam dressing kit.

E. Identify a relocation site for the ViewPad. In order to protect the skin between the wound and the ViewPad relocation site, cut the Safetac film into relocation strips. Ensure that relocation strips are only 1-2 cm wider than the width of the foam bridge and the foam landing-pad.

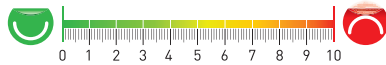
F. Cut the foam, away from the wound, into the appropriate size corresponding with the dimensions of the wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

G. Cut the foam for the bridge section into strips or cut in a cinnamon roll technique to create one long strip.

H. Cut a piece of the foam into a foam landing-pad that is big enough to support the ViewPad at the relocation site. Use the ViewPad as a template.

The Avance Film with Safetac technology is designed to minimize Patient pain¹



1A



1B



1D



1E



1G



1H

Avance Foam landing-pad, should fully support the ViewPad.

The Avance Film Safetac technology promotes patient comfort by reducing pain, erythema and skin stripping at the dressing change¹ and is designed for use on the patient with a dry periwound.

2. Protect

A. Cover any areas of the wound that need protection with Mepitel®.

NOTE: Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

B. Dry the skin thoroughly.

C. Place the cut relocation strips with Safetac® film onto the skin from the wound edge to the relocation site.

D. When using multiple strips of the Safetac film, ensure that there is at least a 3-5 cm overlap.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the film, the adhesion level on the skin will be negatively affected.



2C



2D 3-5 cm overlap of the relocation strips.

When choosing a relocation site: If possible, relocate the ViewPad™ to an area distal to the wound, within the patient view and away from pressure points.

3. Apply

A. Place the foam in the wound.

B. Place the foam strip from the wound onto the cut Safetac film relocation strip. Continue bridging the foam on top of the remaining relocation strips to the relocation site. Ensure that there is foam-to-foam contact between the wound, bridge and relocation site and that the foam at the relocation site can support the ViewPad.

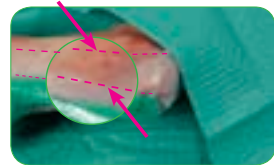
C. Remove the release liner in the middle of the Safetac film and cover the foam in the wound, the bridge section and the foam landing-pad at the relocation site. Ensure that the second layer of the Safetac film overlaps the first layer (relocation strips) by at least 5 cm onto the surrounding skin.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

D. Cut a hole in the Safetac film, approximately 1 cm in diameter in the center of the foam landing-pad at the relocation site.

E. Remove the release liner on the ViewPad and place it directly over the cut hole and press firmly.



3C 5 cm overlap past the relocation strip.



3D 1 cm hole in the Safetac film at the foam landing-pad relocation site.



3E

4. Commence

- A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the foam is -80 mmHg to -120 mmHg.

- B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Best Practice Tips for the Avance Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac® technology in wound care. *Journal of Wound Care*.

Advanced Technique Application Guide

Bridging with the PHMB Gauze

Including the Avance Film with SafetaC® technology and the Avance ViewPad™



Avance® *SafetaC*
TECHNOLOGY


Mölnlycke®

The Bridging technique is used to treat multiple wounds with one dressing kit, or to off-set the Avance® ViewPad™ in narrow wounds, on a pressure point. It is recommended to use the large PHMB Gauze Dressing kit when bridging. Never bridge a non-infected wound with an infected wound or bridge wounds with different etiologies as this may put wounds at risk for cross contamination.

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance Film with Safetac technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance View Pad.

1. Prepare

A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.

B. Prepare all dressing materials.

NOTE: Only use the sterile PHMB Gauze supplied in the dressing kit.

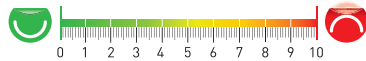
C. Cleanse the wound bed as instructed by the clinician.

D. Cleanse the periwound skin and thoroughly dry.

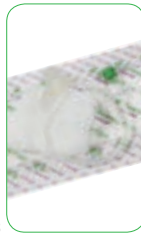
NOTE: Do not use oxidizing agents, such as hypochlorite solutions or hydrogen peroxide, prior to use of the PHMB Gauze dressing kit.

The Avance Film with Safetac® technology promotes patient comfort by reducing pain, erythema, skin stripping at dressing change¹ and is designed for use on the patient with a dry periwound.

The Avance Film with Safetac technology is designed to minimize Patient pain¹



1A



1B



1C



1D

Always assess the wound for the most appropriate location for the Avance ViewPad prior to applying the Safetac film periwound picture frame (window pane). The distal portion of the dressing, if appropriate, is preferred.

2. Protect

A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

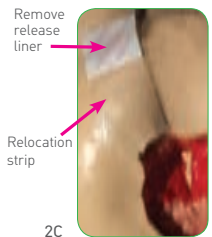
B. Dry the skin thoroughly.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.

C. Always protect intact skin with the Safetac film where the PHMB Gauze will be placed when bridging away from an area of pressure, or when bridging between two wounds. Cut the Safetac film relocation strips 1-2 cm larger than the PHMB Gauze cylinder tunnel being bridged [See step 3E]. Remove the release liner on the Safetac film.



2A



2C

NOTE: When choosing a relocation site, if possible, relocate the ViewPad™ to an area distal to the wound, within the patient view, and away from pressure points.

3. Apply

- A. Moisten the PHMB Gauze with sterile or saline water (not included in the Avance Gauze Dressing Kit). Squeeze out any excess sterile or saline water from the PHMB Gauze. Ensure that the PHMB Gauze is moist and not saturated.

Addressing Tunnel(s) and Undermining

[3B and 3C]:

- B. Open up the moistened PHMB Gauze to create a cylindrical shape to act as a wick. Insert this moistened PHMB Gauze wick into the end of the tunnel. Gently withdraw the PHMB Gauze wick 0.5-1 cm from the end of the tunnel. It is important not to over stuff the tunnel as this could keep the tunnel open and prevent healing.
- C. Next, fill areas of undermining with the moistened PHMB Gauze. If more than one piece of moistened PHMB Gauze is utilized in the wound, ensure that all the pieces are touching.
- D. Fill the rest of the wound with the moistened PHMB Gauze. Ensure that the PHMB Gauze fills the wound but do not over pack.

Creating an PHMB Gauze Bridge:

- E. Twist the PHMB Gauze into a cylinder tunnel and place onto the Safetac® film relocation strips that lead to either where the ViewPad™ will be relocated, or to the second wound.

Creating the Mushroom Cap to Relocate the Avance ViewPad:

- F. Twist the PHMB Gauze into a cylinder tunnel into a circular area creating a mushroom cap (landing-pad), distal to the wound that will support the Avance ViewPad. Ensure that the PHMB Gauze mushroom cap (landing-pad) is placed on the periwound that was protected with the Safetac film (See step 2C).

Bridging Two Wounds:

- G. Fill the first wound with the PHMB Gauze as directed. Create an PHMB Gauze cylinder tunnel, as illustrated in step 3E, that extends from the first PHMB Gauze filled wound to the second wound. Ensure that the PHMB Gauze cylinder tunnel is placed on the Safetac film relocation strips between both wounds. Fill the second wound with the PHMB Gauze. **DO NOT** over-pack; cut the PHMB Gauze.

Avance Film with Safetac technology Application for Steps 3F and 3G

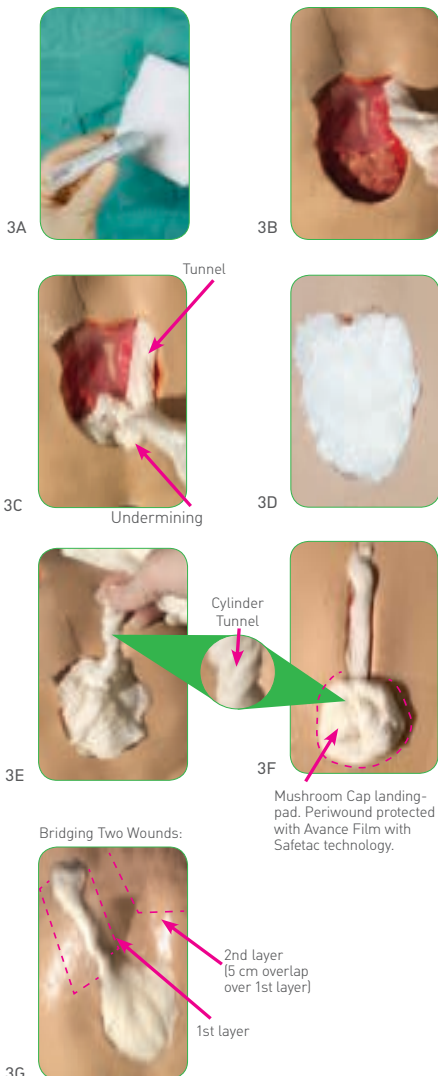
- H. Apply the Safetac film over the wound(s), relocation site, and/or PHMB Gauze mushroom cap (landing-pad). Ensure that the top layer of the Safetac film extends 5 cm past the relocation strips/mushroom cap (landing-pad) onto surrounding skin.

NOTE: Do not stretch or cut the second layer of the Safetac film when applying it over the PHMB Gauze and the 1st layer of the relocation strips as it may loosen when negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

- I. Cut a hole in the Safetac® film approximately 1 cm in

To prevent fraying of the PHMB Gauze, cut when moistened.



3. Apply (continued)

diameter where the ViewPad™ will be located. Ensure that the ViewPad is supported on the PHMB Gauze. For narrow wounds, please refer to the Mushroom Advanced Technique Application Guide with the PHMB Gauze.

- J. Remove the release liner of the ViewPad and place it directly over the cut hole and press firmly.

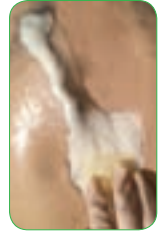
Place ViewPad at distal portion of dressing.

3I



1 cm hole

3J



4. Commence

- A. Connect the ViewPad tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the PHMB Gauze is -60 mmHg to -80 mmHg.

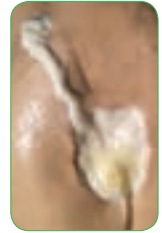
- B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.

4A



4B



Best Practice Tips for the Avance Film with Safetac technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame [window pane] with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac technology in wound care. *Journal of Wound Care*.

Tunneling/Sinus Tract and Undermining Technique Application Guide with Mepitel®

Depending on the size of the tunnel/sinus tract, Mepitel® can be used with the Avance® Foam. The purpose of the Avance® Foam within the tunnel/sinus tract is to act as a wicking agent to bring NPWT into the body of the tunnel/sinus tract for removal of exudate and assist with progressive closure from the base of tunnel/sinus tract. The Mepitel® will prevent in-growth of tissue into the foam and allow for safe removal of the foam from the tunnel/sinus tract at dressing change. The foam should be cut slightly narrower than the tunnel/sinus tract, but longer in length by 1 to 3cm. The Mepitel® should be cut the width of the foam and the length of the foam so as to wrap it as a sling from end to end. The method will allow visual observation and the ability to grasp ends at the next dressing change to ensure removal. When filling a tunnel/sinus tract the foam should be entered to the anatomical end and then withdrawn by at least 0.5 to 1cm to allow progressive closure from distal to proximal. Clinical best practice during NPWT is to provide wicking of tunnel/sinus tract exudate not to provide packing to fill the cavity as the latter method will prevent tissue closure through negative pressure.

Advanced Technique Application Guide

Tunneling and Undermining with Mepitel®

Including Avance® Foam Dressing Kit, Avance Film with Safetac® technology and Avance ViewPad™



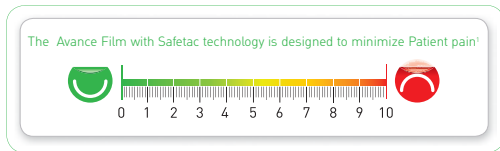
Mepitel® is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance® NPWT system. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal or to protect exposed fragile tissue from direct positioning of NPWT foam, such as in areas of undermining and tunnel(s).

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance Film with Safetac technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance View Pad.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed. Ensure that the tunnel(s) and/or undermining are flushed and cleaned as instructed by the clinician. Cleanse and thoroughly dry the periwound.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.



1A



1B



1C

2. Protect

- A. Cover any areas of the wound that need protection with Mepitel. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.



2A

Patients with multiple wounds or to off-set the ViewPad™ from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide for additional technique options.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.

3. Apply

- A. The clinician should assess and measure the tunnel(s), undermining and the wound cavity and record in the patient's medical record. Do not place any foam dressing into blind/unexplored tunnels. Ensure to document the number of pieces of foam and Mepitel placed in the wound.
- B. Cut the foam, away from the wound, into an appropriate size corresponding with the dimension(s) of the tunnel(s), undermining and wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

The Avance Film with Safetac technology promotes patient comfort by reducing pain, erythema, skin stripping at the dressing change and is designed for use on the patient with a dry periwound.

3. Apply *(continued)*

Wound with Tunnel Application

Avance® Foam with Mepitel® with one piece method:

- C. Ensure that the foam is cut into one piece (cinnamon roll) with a smaller narrow portion that can extend into the tunnel. Do not place any foam into blind or unexplored tunnels.
- D. Ensure that the Mepitel is applied to the foam such that it does not bunch when inserted into the tunnel: a U-shaped strip of Mepitel applied from end to end over the foam piece, secured by fingers when inserting into the wound will prevent bunching.
- E. Gently, advance the Mepitel/foam narrow end into the tunnel until the end of the tunnel is detected. Gently withdraw the Mepitel/foam 0.5-1 cm from the end of the tunnel. Ensure that the Mepitel tail extends from the tunnel into the base of the wound to allow for easy visual and retrieval.

NOTE: It is important not to overstuff the tunnel as this could keep the tunnel open and prevent healing.

Avance Foam with Mepitel with two piece method:

NOTE: If two pieces of the foam are cut, one for the wound cavity and one for the tunnel, the length of the Mepitel/foam for the tunnel should be an additional 3 cm (retrieval tail) that extends into the base of the wound. This allows for communication between the two pieces of the Mepitel/foam and for identification upon removal at the next dressing change.

- F. Ensure that the foam is cut with a smaller narrow portion that can extend into the tunnel. Wrap Mepitel around the narrow portion of the foam. Do not put any Mepitel/foam into any blind/unexplored tunnel(s).
- G. Gently advance the Mepitel/foam narrow end into the tunnel until the end of the tunnel is detected. Gently withdraw the Mepitel/foam 0.5 -1 cm from the end of the tunnel. Ensure that the Mepitel tail extends from the tunnel into the base of the wound 3 cm to allow for visual and retrieval.
- H. Place the second piece of the foam (cut to the dimension(s) of the wound cavity) on top of the Mepitel/foam retrieval tail. Ensure that both pieces of the foam are communicating.

Avance Foam with Mepitel for a wound with Undermining:

NOTE: In an undermined area where it is difficult to view all aspects of the wound or where in-growth could be problematic, the foam may be covered with Mepitel to ensure safe removal at the next dressing change.

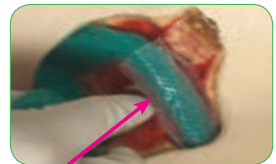
- I. Cut the foam piece to the dimension(s) of the undermined area and place in the undermined area of the wound. Gently pull the foam back from the undermined edge 1 cm in large areas of undermining, or if aspects of the undermined area are not visible. If multiple foam pieces are cut, ensure that all pieces of the foam are communicating.



3D



3E



3F 3 cm Mepitel/foam retrieval tail.



3H



3I

3. Apply (continued)

The following applies for all techniques:

J. Cut the Safetac film to the appropriate size of the wound, allowing for an overlap of 3-5 cm onto the surrounding skin.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration; do not apply more than two layers of the Safetac film.

K. Cover the foam with the Safetac film.

L. Cut a hole in the Safetac film approximately 1 cm in diameter at the distal portion of the dressing, if appropriate. Ensure that the ViewPad™ is fully supported by the foam.

M. Firmly place the ViewPad over the cut hole.



3J 3-5 cm overlap



3L

4. Commence

A. Connect the ViewPad tubing to the Avance Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac® technology in wound care. *Journal of Wound Care*.

Incision Technique¹

This dressing application is usually performed in the operating room(OR) but this same dressing format could be applied at bedside over an incision by physician order. Sutures and staples should be covered with a non-adherent dressing (e.g. Mepitel®) prior to application of the Avance® NPWT System. This will prevent them from becoming snagged or entangled in the foam during therapy and dressing removal. It is important not to use skin glue products in the incision closure as these may prevent fluid from being drawn out of the underlying tissue.

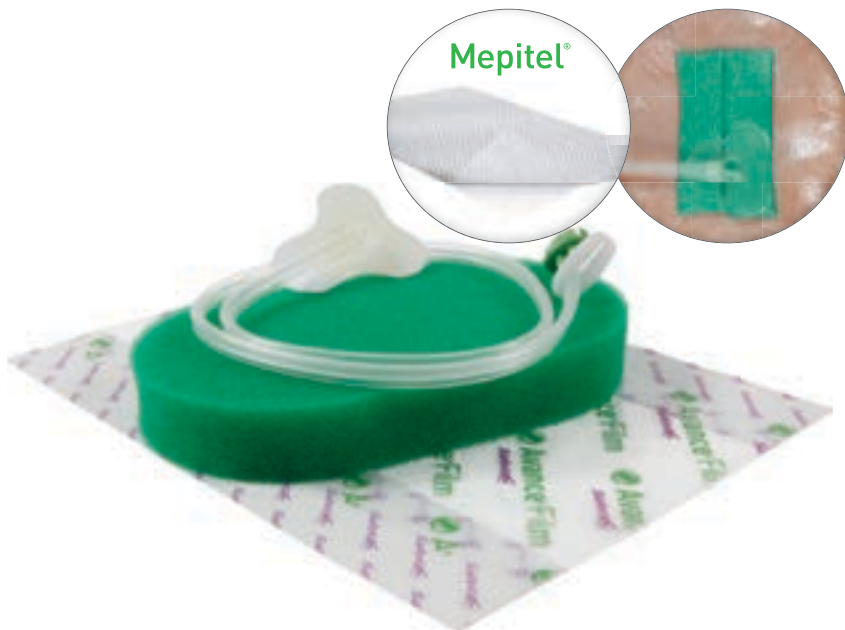
Reference:

1. Henderson V, Timmons J, Hurd, T, Deroo K, Maloney S, Sabo S. NPWT in everyday practice Made Easy. Wounds International 2010; 1(5): Available from <http://www.woundsinternational.com> ©

Advanced Technique Application Guide

Incision with Mepitel®

Including Avance® Foam Dressing Kit, Avance Film with Safetac® technology and Avance ViewPad™



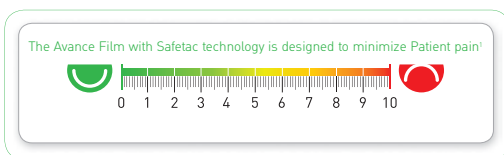
The application of the Avance® NPWT System to clean, closed surgical incisions is indicated in surgical incisions where patients may be at risk for surgical site complications. The primary management objectives of the Avance NPWT System for closed surgical incisions is to remove interstitial edema, and fluid from the incision site in patients at risk for complications.

NOTE: This dressing is customarily applied in the operating room following incision closure.

NOTE: The term **Safetac®** film referenced below is the abbreviated form of **Avance Film with Safetac®** technology. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. If the dressing is not applied in the operating room, assess the patient for pain. Medicate as indicated and as ordered, prior to the Avance dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the periwound skin and thoroughly dry.



1A



1B



1C

2. Protect

- A. Apply a 3 cm wide strip of the Safetac film along each side of the incision line, extending approximately 1 cm on either end, directly abutting but not covering the sutures/staples.
- B. Cut 2 additional small pieces of the Safetac film to cover each end of suture line space between the 2 strips.

NOTE: Depending on the location of the incision, protect the intact skin, if a Mushroom or a Bridged Application is needed to relocate the ViewPad.

- C. Cut a strip of a non-adherent contact layer, such as Mepitel®, and apply over the suture line.



2A



2B



2C

Mepitel® is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance® NPWT System. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal¹ or to protect exposed fragile tissue from direct positioning of NPWT dressing interface.

3. Apply - Option 1 Safetac® Film Technique (3A–3E)

A. Holding the foam away from the prepared dressing site, cut into the foam a depth of 3 cm, creating a strip that is twice the length of the incision. Cut the strip in half.



B. Place the two foam strips side by side over the prepared incision area.

C. Place the Safetac film over both strips of foam to seal, extending 3-5 cm onto intact skin. Ensure that the Safetac film anchors onto the intact skin 3-5 cm past the 1st protective layer.



NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

D. Cut a hole to approximately 1 cm in diameter into the Safetac film, 3 cm from the distal portion of the dressing near the mid-line but on either foam strip.



The Avance Film Safetac technology promotes patient comfort by reducing pain, erythema and skin stripping at the dressing change¹ and is designed for use on the patient with a clean, dry periwound.

E. Place the ViewPad™ onto the dressing over the hole and press firmly, ensuring that the dressing tubing is placed to “run” away from the dressing and that the ViewPad is fully supported on the foam.

3E

3. Apply - Option 2 Mushroom Technique (3F–3N)

After steps 1 Prepare, and 2 Protect are completed, begin Option 2 with step 3F.

F. After preparing peri-incision skin as in 2A and 2B, cut a strip of a non-adherent contact layer, such as Mepitel®, the length of the suture line 2 cm in width [See step 2C].



G. Holding the foam away from the prepared dressing site, cut into the foam a depth of 3 cm creating a strip the length of the incision line [See step 3A].

3F

3H

H. Cut the foam into a square landing-pad (mushroom cap) that will fully support the ViewPad. Use the ViewPad as a size template. Do not file/thin the foam.



I. Place the foam on top of the Mepitel, extending the length of the incision line. Place the foam landing-pad (mushroom cap) on top of the foam at the distal portion of the incision. Ensure that both pieces of foam are touching and that the periwound is protected with the Safetac film in the area where the foam landing-pad is located on intact skin [See steps 2A and 2B].

3I

3J

NOTE: A periwound picture frame (window pane) is defined as protecting intact skin that is in contact with the foam.

J. Cut the Safetac film to the appropriate size and apply it over the foam, allowing for an overlap of 3-5 cm onto the surrounding skin, past the underlying first layer of the Safetac film. Do not cut into strips. It is important that the second layer of the Safetac film anchor into intact skin for 3-5 cm past the first layer of Safetac film (picture frame/window pane) that was placed on the periwound.

3. Apply - Option 2 (3K-3M) *(continued)*

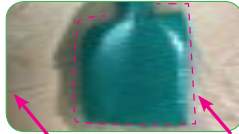
NOTE: Do not stretch or cut the Safetac® film into strips as it may negatively affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

K. Remove the release liners on the Safetac film. Do not worry if there are some wrinkles as this ensures that the Safetac film was not stretched.

L. Cut a hole approximately 1 cm in diameter into the Safetac film in the center of foam landing-pad.

M. Firmly place the ViewPad™ over the cut hole.



3K 3-5 cm overlap 1st layer



3L



3M

If appropriate, a Bridged technique can be used to relocate the ViewPad. For more information, please refer to the Advance Technique Application Guide for Bridging with the Avance foam.

4. Commence

A. Connect the ViewPad tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

B. Once the negative pressure is applied the dressing will collapse. There may be a tightening sensation in the wound, but this should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



Option 1



Option 2

Best Practice Tips for the Avance Film with Safetac technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds a further instructions.

Mushroom Technique Application Guide

Mushroom technique is a simple method to support the Avance® ViewPad™. The “mushroom cap” is a piece of foam cut to fit the full dimension of the Avance® ViewPad™. It is used with a small/narrow shaped wound. If the wound entry size is small then this can be difficult to place the Avance® ViewPad™ without causing damage to the surrounding periwound area. Likewise if the wound is narrow and a Bridged technique is not desired, this application method will provide a foam base support for the placement of the Avance® ViewPad™. In these wounds, clinicians can either use a Mushroom Technique or the Bridging Technique mentioned above.

1. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient’s physician and take measures to stop the bleeding.

Advanced Technique Application Guide

Mushroom Technique with Avance® Foam - Narrow Wounds

Including Avance Film with Safetac® technology and Avance ViewPad™



The Mushroom Technique is used for narrow wounds, where the Avance® ViewPad™ is larger than the dimensions of the wound and cannot be fully supported by the foam. The Avance Film with Safetac®¹ technology promotes patient comfort by reducing pain, erythema, skin stripping at the dressing change and is designed for use on the patient with a dry periwound. For narrow wounds, with minimal depth, a modified technique without the mushroom cap (landing-pad) may be utilized. For large narrow wounds, with difficult anatomical geometries, a modified bridge-mushroom technique with the Avance Transparent Film may be utilized. The Avance Transparent Film has a gentle adhesive backing and is indicated for use on the patient with a moist periwound, increased natural skin oils, or difficult anatomical geometries.

NOTE: The term **Safetac film** referenced below is the abbreviated form of **Avance Film with Safetac technology**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed and periwound. Dry the periwound thoroughly.

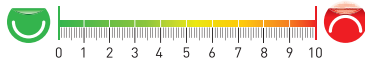
NOTE: Do not use oxidizing agents such as Hypochlorite Solutions or Hydrogen Peroxide prior to use of the Avance Foam dressing.

- D. For narrow wounds: cut the foam away from the wound into an appropriate size, corresponding with the dimensions of the wound cavity. Extra foam pieces may need to be cut to accommodate deeper areas within the wound. Ensure that the foam extends 3 cm above the wound. Set aside the foam on a clean surface. The inside of the Avance Dressing Kit packaging may be used.
- E. Cut the foam into a square mushroom cap (landing-pad) that will fully support the ViewPad. Use the ViewPad as a size template. Do not file/thin the foam.

NOTE: Rub the foam edges to remove any loose particles.

A periwound picture frame (window pane) is defined as protecting intact skin that is in contact with the foam. A periwound picture frame (window pane) is generally not recommended with the Avance NPWT System. However, in wounds where the ViewPad is larger than the wound, such as in narrow wounds, a periwound picture frame (window pane) with the Safetac film may be utilized.

The Avance Film with Safetac technology is designed to minimize Patient pain!



1A



1B



1C



3E

2. Protect

- A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

Always assess the wound for the most appropriate location for the ViewPad prior to applying the Safetac film periwound picture frame (window pane). The most distal portion of the dressing, if appropriate, is preferred. If the wound is on a pressure point, consider relocating the ViewPad away from the pressure point. Please refer to the Bridging Advanced Technique Application Guide for more information.

Mepitel contact layer

2A



2. Protect *(continued)*

B. Dry the periwound skin before applying the Safetac® film.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.

C. Cut the Safetac film approximately 1 cm larger than the foam square landing-pad (mushroom cap) that will overlap on to intact skin [See image 3A for illustration]. Apply the Safetac film periwound picture frame (window pane) at the distal portion of the wound where the ViewPad™ will be located.

For wounds that are narrow, with a minimal depth, and where the ViewPad is larger than the wound, a modified mushroom technique can be utilized. Apply the Safetac film periwound picture frame (window pane) onto a dry intact periwound at the distal portion of the wound. This is to protect the intact skin where the ViewPad will be located. The size of the picture frame (window pane) should be approximately 1 cm larger than the foam that will overlap on to intact skin. In wounds with minimal depth, there is no need to add the foam mushroom cap (landing-pad) as long as the full thickness of the foam is utilized. Do not filet the foam in half.



2C

Periwound protected with Avance Film with Safetac technology picture frame

3. Apply

A. Place the foam in the wound.

B. Place the foam mushroom cap (landing-pad) on top of the foam in the wound at the distal portion of the dressing. Ensure that both foam pieces are communicating. Ensure that the periwound is protected with the Safetac film picture frame in areas where the foam mushroom cap (landing-pad) is located on intact skin [See step 2C].

C. Cut the Safetac film to the appropriate size, and apply it over the foam in the wound and the foam mushroom cap (landing-pad). Ensure that there is an overlap of 3-5 cm past the first layer of the Safetac film picture frame (window-pane) onto the surrounding skin.

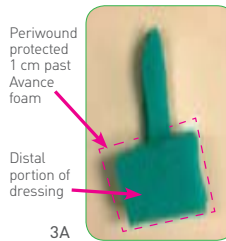
NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

D. Cut a hole approximately 1 cm in the Safetac film in the center of the foam mushroom cap (landing-pad).

E. Remove the release liners on the Safetac film. Do not worry if there are a few wrinkles, as this ensures that the Safetac film was not stretched.

F. Firmly place the ViewPad over the cut hole.



3A



3C



3B



3D

1 cm hole

For Extremely Narrow and Deep Wound:

Fill the wound with the foam. Ensure that there is a 3 cm foam tail extending above the wound if appropriate. A Mepitel® contact layer can be applied to the foam. Apply a U-shaped piece of Mepitel around the foam (end-to-end). Ensure that a 3 cm Mepitel/foam tail extends above the wound (not illustrated). For more information, please refer to the Advanced Technique Application Guide for addressing Tunneling and Undermining with Mepitel.

4. Commence

A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

Best Practice Tips for the Avance Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac technology in wound care. *Journal of Wound Care*.

Advanced Technique Application Guide

Mushroom Technique with PHMB Gauze-Narrow Wounds

Including Avance Film with Safetac® technology and Avance ViewPad™



Avance® *Safetac*
TECHNOLOGY


Mölnlycke®

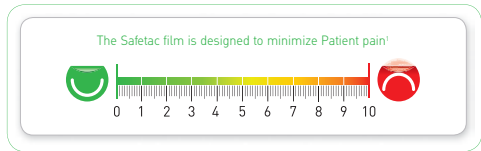
The Mushroom Technique is used for narrow wounds, where the Avance® ViewPad™ is larger than the dimensions of the wound and cannot be fully supported by the PHMB Gauze. The Avance Film with Safetac® technology promotes patient comfort by reducing pain, erythema, skin stripping at the dressing change¹ and is designed for use on the patient with a dry periwound. For narrow wounds, with minimal depth, a modified technique without the mushroom cap (landing-pad) may be utilized.

NOTE: The term **Safetac film** referenced below is the abbreviated form of **Avance Film with Safetac technology**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad** is the abbreviated form of **Avance View Pad**.

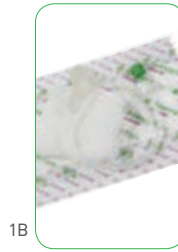
1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
NOTE: Only use the sterile PHMB Gauze supplied in the dressing kit.
- C. Cleanse the wound bed and periwound. Dry the periwound thoroughly as instructed by the clinician.

A periwound picture frame (window pane) is generally not recommended with the Avance NPWT System. However, in wounds where the ViewPad is larger than the wound, such as in narrow wounds, a periwound picture frame (window pane) with the Safetac film may be utilized.

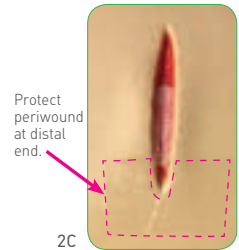
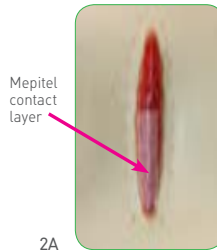


1A



2. Protect

- A. Cover any areas of the wound that need protection with Mepitel®. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.
- B. Dry the periwound skin before applying the Safetac film.
NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac film, the adhesion level on the skin will be negatively affected.
- C. Cut the Safetac film approximately 1 cm larger than the PHMB Gauze mushroom cap (landing-pad) that will be placed onto the intact skin (See steps 2C & 3E). Apply the Safetac film periwound picture frame (window pane) at the distal portion of the wound where the ViewPad will be located.



Always assess the wound for the most appropriate location for the ViewPad prior to applying the Safetac film periwound picture frame (window pane). The most distal portion of the dressing, if appropriate, is preferred. If the wound is on a pressure point, consider relocating the ViewPad away from the pressure point. Please refer to the Bridging Application Guide for more information.

3. Apply

- A. Moisten the PHMB Gauze with sterile or saline water (not included in the Avance Gauze Dressing Kit). Squeeze out any excess sterile or saline water from the PHMB Gauze. Ensure that the PHMB Gauze is moist and not saturated.

Addressing Tunnel(s) & Undermining [3B and 3C]:

- B. Open up the moistened PHMB Gauze to create a cylindrical shape to act as a wick. Insert this moistened PHMB Gauze wick into the end of the tunnel. Gently withdraw the PHMB Gauze wick 0.5-1 cm from the end of the tunnel. It is important not to over stuff the tunnel as this could keep the tunnel open and prevent healing.
- C. Next, fill areas of undermining with the moistened PHMB Gauze. If more than one piece of moistened PHMB gauze is utilized in the wound, ensure that all the pieces are touching.
- D. Fill the rest of the wound with the moistened PHMB Gauze. Ensure that the PHMB Gauze fills the wound but do not over pack.

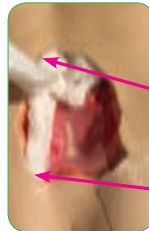


3A



3B

Tunnel



3C

Undermining

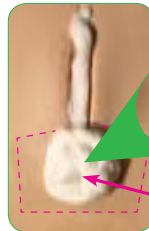
Tunnel



3D

Creating the Mushroom Cap:

- E. Twist the moistened PHMB Gauze into a cylinder tunnel and make a circular area creating a mushroom cap (landing-pad) that will support the View Pad. Ensure that the PHMB Gauze mushroom cap (landing-pad) is placed on the protected periwound (See step 2C).
- F. Dry the periwound skin before applying the Safetac® film.
- G. Apply the Safetac film over the PHMB Gauze and the PHMB Gauze mushroom cap (landing-pad). Do not cut into strips. It is important that the second layer of the Safetac film anchor onto intact skin 3-5 cm past the first layer of the Safetac film picture frame/window pane.



3E

Cylinder Tunnel

Mushroom Cap (landing-pad)

To prevent fraying of the PHMB Gauze, cut when moistened.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

- H. Remove the release liners on the Safetac film. Do not worry if there are a few wrinkles as this ensures that the Safetac film was not stretched. Ensure that the Safetac film anchors on to intact skin.

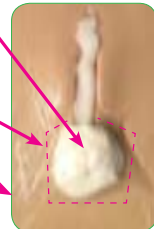


3G

Distal portion of dressing

Mushroom Cap (1st layer)

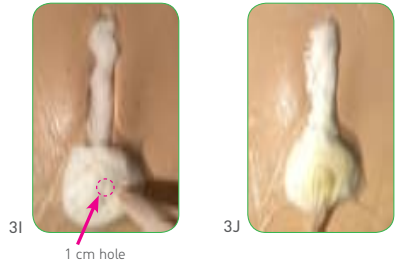
2nd layer (3-5cm past 1st layer)



3H

3. Apply *(continued)*

- I. Cut a hole approximately 1 cm in diameter in the Safetac® film in the center of the PHMB Gauze mushroom cap (landing-pad).
- J. Firmly place the ViewPad™ over the cut hole.

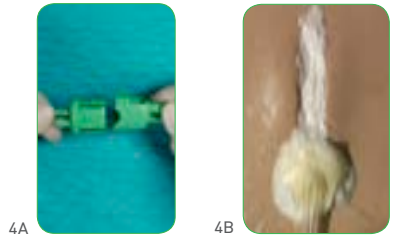


4. Commence

- A. Connect the ViewPad tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the PHMB Gauze is -60 mmHg to -80 mmHg.

- B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.



NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.

Best Practice Tips for the Avance Film with Safetac technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac technology in wound care. *Journal of Wound Care*.

Dehisced Surgical Wound Application^{1,2,3}

1. Assess the patient for pain and medicate appropriately.
2. The clinician should assess the wound cavity for undermined area(s) and/or tunnelled/tract area(s). Measure and record the wound and undermined area(s) and/or tunnelled/tract area(s) to be treated in the patient's medical record.
3. If sutures or staples or underlying cavity structures are present these should be covered with a non-adherent wound contact layer (e.g. Mepitel®).
4. The wound/undermining/tunneling/tracts can be addressed with a dressing of Avance® Foam or Avance® Foam with antimicrobial PMHB gauze or with just antimicrobial PMHB gauze.
5. The Avance® Film should be selected based on the status of the periwound using either Avance® Film with Safetac® technology or Avance® Transparent Film.
6. Dress the wound using any of the appropriate application techniques described previously:
 - a. Avance® Film with Safetac® technology
 - b. Avance® Transparent Film Application Guide
 - c. Bridging Technique Application Guide
 - d. Mushroom Technique Application Guide
7. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

References:

1. Fife, C.E., Otto, G., Walker, D., Turner, T., Smith, L. Healing dehisced surgical wounds with negative pressure wound therapy. *Ostomy Wound Manage* 2004 Apr;50(4A Suppl):28-31.
2. Harrison, M. Avance® Negative Pressure Wound Therapy System in the treatment of dehisced surgical wounds: a case study series. Poster presentation at the Wounds UK Conference, Harrogate, United Kingdom, 2010.
3. Fleck T, Fleck M. Negative pressure wound therapy for the treatment of sternal wound infections after cardiac surgery. *Int Wound J* 2012; doi: 10.1111/j.1742-481X.2012.01079.x

Sternal Wound Application

The use of NPWT is considered first-line(1) treatment for sternal wound closure. The wound requires a complete assessment of underlying structure and medical status.

1. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Advanced Technique Application Guide

Sternal Wound with Mepitel®

Including Avance® Foam Dressing Kit and Avance Film, SafetaC® technology and Avance ViewPad™

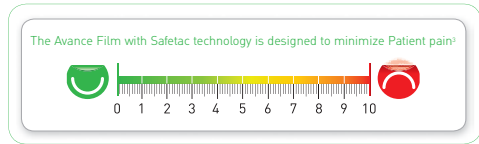


The use of the NPWT is considered first-line treatment¹ in sternal wounds. The Avance® NPWT system should always remain in Continuous Therapy Mode for patients with open sternal wounds. Careful assessment of the wound bed and underlying structures is vital in patients with an unstable sternum, deep sternal wound infection and/or mediastinitis^{1,2}. Therefore, the protection of the wound bed with Mepitel® is indicated under the foam in open sternal wounds^{1,2}.

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance Film with Safetac technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance View Pad.

1. Prepare

- Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
 - Prepare all dressing materials.
 - Cleanse the periwound skin and thoroughly dry.
- NOTE:** Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.



1A

Always assess the wound for the most appropriate positioning of the ViewPad prior to application of the dressing. The most distal portion of the dressing is the preferred location of the ViewPad.



1B



1C

2. Protect

- If any underlying structures are present, these should be covered with a Mepitel wound contact layer. The Mepitel wound contact layer should be placed in a hammock-like position under the foam, extending 3 cm onto the periwound.
- If two layers of Mepitel are used, place in cross-pattern hammock-like position.

NOTE: No more than two layers of Mepitel should be utilized. Ensure that the Mepitel is changed at every dressing application.

- For the Mushroom technique: Cut the Safetac® film approximately 1 cm larger than the foam square landing-pad [mushroom cap] [See step 3B] that will overlap onto intact skin. Apply the Safetac film periwound picture frame (window pane) at the distal portion of the wound, where the ViewPad will be located.

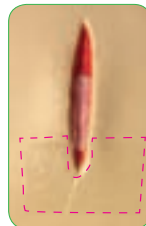
A periwound picture frame (window pane) is defined as protecting intact skin that is in contact with the Avance Foam. A periwound picture frame (window pane) is generally not recommended with the Avance NPWT System. However, in wounds where the ViewPad is larger than the wound, such as in narrow wounds, a periwound picture frame (window pane) with the Safetac film may be utilized.



2A



2B



2C

Mepitel is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance NPWT System. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal¹ or to protect exposed fragile tissue from direct positioning of the NPWT dressing interface such as in areas of undermining and tunnel(s).

3. Apply

NOTE: Ensure to debride the wound of necrotic tissue and free the sternal edges from adhesions in open sternal wounds, prior to the placement of the dressing application.

- A. For a wound with an intact sternum: Cut the foam away from the wound into an appropriate size, corresponding with the dimensions of the wound cavity. Extra foam pieces may need to be cut to accommodate deeper areas within the wound. Ensure that the foam extends 3 cm above the wound and all foam pieces are touching.

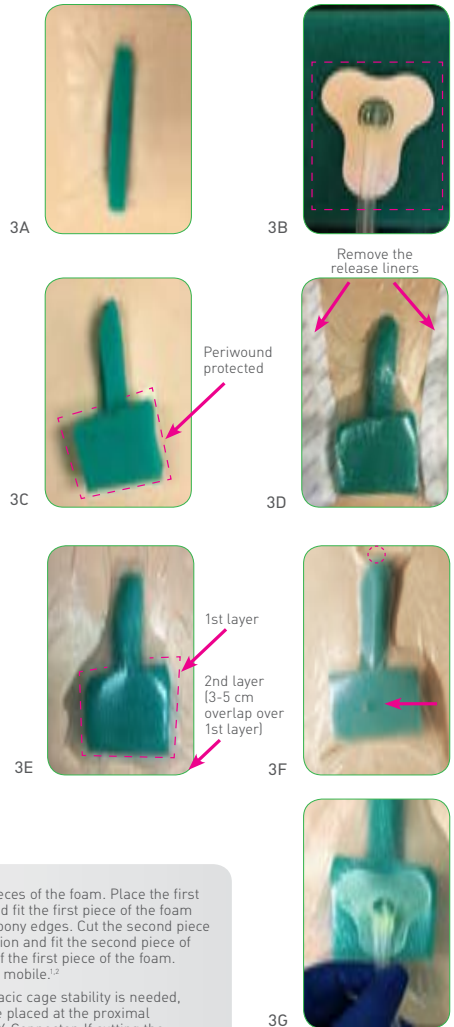
Mushroom Technique for a Narrow Sternal Wound (Steps 3B- 3D):

- B. Cut the foam, into a square mushroom cap [landing-pad] that will fully support the ViewPad™. Use the ViewPad as a size template. Do not file/thin the foam.
- C. Place the foam mushroom cap [landing-pad] on top of the foam placed in the wound, at the distal portion of the dressing. Ensure that both the foam pieces are communicating and that the periwound is protected with a Safetac® film picture frame in areas where the foam landing-pad is located on intact skin [See step 2C].
- D. Cut the Safetac film to the appropriate size, and apply it over the foam in the wound and the foam mushroom cap [landing-pad]. Ensure that there is an overlap of 3-5 cm past the first layer of the Safetac film picture frame [window-pane] onto the surrounding skin.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

- E. Remove the release liners on the Safetac film. Do not worry if there are a few wrinkles, as this ensures that the Safetac film was not stretched.
- F. Cut a hole, approximately 1 cm in diameter, in the Safetac film, center of the landing-pad (mushroom cap).
- G. Firmly place the ViewPad over the cut hole.



For the open sternum wound (non union of sternum): Cut two pieces of the foam. Place the first piece of the foam in the Mepitel hammock. Ensure to position and fit the first piece of the foam between the sternal edges to prevent shear forces between the bony edges. Cut the second piece of the foam over-sized to the wound dimensions. Ensure to position and fit the second piece of the foam in the Mepitel hammock within the wound and on top of the first piece of the foam. The oversized foam provides sternal stability when the patient is mobile.^{1,2}

For larger open sternum wounds, where an increase in the thoracic cage stability is needed, with a more uniform distribution of NPWT: Two ViewPads can be placed at the proximal and distal portion of the dressing and connected to the Avance® Y-Connector. If cutting the cover dressing film into strips is preferred for more thoracic cage stability, then the Avance Transparent Film should be utilized (not illustrated).^{1,2}

4. Commence

A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for Sternal wounds are Continuous Therapy Mode within a pressure range of -80 mmHg to -120 mmHg. Dressing changes should be done three times a week unless C-Reactive Protein(CRP) levels are rising. Consider more frequent dressing changes when CRP levels are rising based on the prescriber's recommendations. Assessment should include stable CRP levels (30-70 dtg/l), wound assessment and pulmonary function².

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B

The Avance Film with Safetac® technology promotes patient comfort by reducing pain, erythema, and skin stripping at the dressing change³ and is indicated for use on the patient with a dry periwound.

Best Practice Tips for the Avance Film with Safetac technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Bovill, Estes, et al. "Topical negative pressure wound therapy: a review of its role and guidelines for its use in the management of acute wounds." *International wound journal* 5.4 (2008): 511-529. 2. Petzina, Rainier, et al. "Negative pressure wound therapy for post-sternotomy mediastinitis reduces mortality rate and sternal re-infection rate compared to conventional treatment." *European Journal of Cardio-thoracic Surgery* 38.1 (2010): 110-115. 3. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac technology in wound care. *Journal of Wound Care*.

Acute – Traumatic – Partial Thickness Burn Application

The application technique of NPWT for an acute wound or a traumatic wound is selected based on the clinical presentation of the wound and assessment of its characteristics. Upon the basis of these findings the appropriate dressing application technique may be selected from this chapter.

NOTE: The Partial Thickness Burn Application is appropriately addressed under the Skin Graft Application Guide

1. Assess the patient for pain and medicate appropriately.
2. If sutures or staples or underlying cavity structures are present these should be covered with a non-adherent wound contact layer (e.g. Mepitel®).
3. The Avance® Foam Dressing Kit with Avance® Film with Safetac® technology or Avance® Transparent Film would be appropriate. These should be selected based on the periwound status.
4. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Orthopedic Devices - External Fixator Application

The application technique of NPWT for a wound with an orthopedic device is often treated by use of the sandwich technique but can also be treated by a technique selected based on the clinical presentation of the wound and assessment of its characteristics. Upon the basis of these findings the appropriate dressing application technique may be selected from this chapter.

1. Refer to the Sandwich Technique Application Guide under Hand/Foot Wound.
2. Assess the patient for pain and medicate appropriately.
3. Each pin site that is present in the wound will need to be sealed. Treat each fixator individually.
4. Consider the use of Mepitel® around each fixator. This should be rolled and wrapped around the fixator and then the foam applied around this rolled extension.
5. Avance® Foam should be applied to the wound cavity.
6. The Avance® Transparent Film should be cut and applied around the fixator using a Sandwich technique by applying the first piece of Avance® Transparent Film on one of the external fixation system to 1/3 to 1/2 of the foam dressing that surrounds the fixators. It may be necessary to lap the film around the fixator and onto its vertical surface. This process stabilizes the foam dressing on the wound and fixators.
7. Utilizing a second piece of Avance® Transparent Film, from the opposite side of the external fixator system, cover the foam dressing and overlapping first piece of Avance® Transparent Film from the other side by an additional 6cm creating a sandwich effect between the first and second piece of Avance® Transparent films.
8. Allow enough transparent film to cover surrounding periwound skin with at least 3-5cm to ensure a good seal.
9. When using a Sandwich technique the Avance® Transparent Film should be used.
10. The film application method may vary as the placement of the fixators dictate. The film may be cut into strips and applied in an overlapping pattern to achieve a seal.
11. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Hand/Foot Wound Sandwich Technique Application

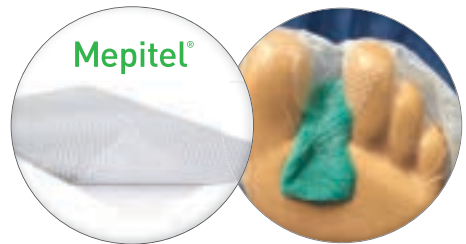
The Sandwich Application Technique is utilized for wounds that lie within difficult anatomical locations or may have a medical device placed within or immediately adjacent to the open wound. This technique may offer the selected cover film an increased capability seal around a device to ensure delivery of appropriate NPWT.

1. Assess the patient for pain and medicate appropriately.
2. The clinician should assess the wound cavity for undermined area(s) and/or tunneled/tract area(s). Measure and record the wound and undermined area(s) and/or tunneled/tract area(s) to be treated in the patient's medical record.
3. If sutures or staples or underlying cavity structures are present these should be covered with a non-adherent wound contact layer (e.g. Mepitel®).
4. The Avance® Foam Dressing Kit with Avance® Film with Safetac® technology or Avance® Transparent Film would be appropriate. These should be selected based on the periwound status and location of the wound on the foot.
5. The Bridged Technique Application is best suited for foot wounds
6. Ensure that the site selected for relocation of the Avance® ViewPad™ is not over a bony prominence or area of minimal subcutaneous tissue.
7. The pressure settings should be determined by the physician. The typical range for foam is -80mmHg to -120mmHg, however pressure may be increased in small increments to -150mmHg if the exudate volume indicates.
8. If there is low volume, keep the pump level with the wound whenever possible.
9. If active bleeding suddenly develops or if ongoing bleeding increases in volume during NPWT, immediately discontinue negative pressure treatment, leave the dressing in place, consult the patient's physician and take measures to stop the bleeding.

Advanced Technique Application Guide

Sandwich

Including Avance® Foam Dressing Kit, Avance Transparent Film and Avance ViewPad™



Avance®


Mölnlycke®

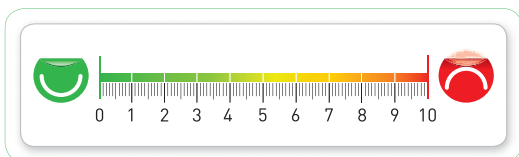
The Sandwich technique can be used around drains, orthopedic fixtures, or wounds with difficult anatomical geometry, where it may be difficult to obtain a seal (foot-close to toes or hand-close to fingers)¹ with appropriate perfusion. The appropriate film choice for the Sandwich technique is the Avance® Transparent Film.

NOTE: The term **Transparent film** referenced below is the abbreviated form of **Avance Transparent Film**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.



1A



1B



1C

2. Protect

- A. If sutures, staples or underlying cavity structures are present these should be covered with a wound contact layer, e.g. Mepitel®.
- B. If the wound is between the toes or fingers, protect intact skin of toes or fingers using Mepitel contact layer hammock technique and the Transparent film. Ensure that the Mepitel does not overlap on to intact skin and that the Mepitel is changed at every dressing application.

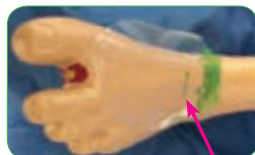
NOTE: Ensure that the uninvolved toes are separated from the web space margin (not illustrated). Ensure that the gauze does not come in contact with the wound or the foam.

- C. If the Bridging or Mushroom Technique are appropriate, prepare the ViewPad relocation site with the Transparent film. See the Bridging or Mushroom Technique Application Guide for more information.

NOTE: The width of the wound and the location will determine if Option 1 or Option 2 should be utilized and if the ViewPad should be off-set with the Bridged or the Mushroom Technique.



2B Mepitel Hammock Technique



2C Remove Transparent film liner

Mepitel is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance NPWT System. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal² or to protect exposed fragile tissue from direct positioning of the NPWT foam dressing interface such as in areas of undermining and tunnel(s).

3. Apply - Option 1 (3A–3E) One piece Avance® Transparent Film option after step 1 Prepare and step 2 Protect have been completed.

- A. Cut the foam to the exact size of the wound and place in the wound. Cut additional foam piece(s) for the bridged relocation application, and the ViewPad™ landing-pad. Ensure that all foam pieces overlap and communicate.

NOTE: Rub the foam edges to remove any loose particles.

- B. Align the single piece of Transparent film so that one half of the sheet will be on the dorsum of the foot and the other half of the sheet will come down over the toes to secure on the plantar surface of the foot.

- C. Press all sides of the Transparent film overlap, on the dorsum half, to the Transparent film overlap on the plantar half; securing them closed to prevent an air leak.

NOTE: Do not stretch the Transparent film as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Transparent film.

- D. Cut a hole approximately 1 cm in diameter in the film where the ViewPad will be placed.

- E. Apply the ViewPad over the hole and press firmly.



3A



3B



3C



3D

1 cm hole in the center of the Transparent film on the foam landing-pad at the relocation site



3E

The Avance Transparent Film has a gentle adhesive backing and is designed for use on the patient with a moist periwound, increased natural skin oils, or difficult anatomical geometries.

3. Apply - Option 2 (3F–3H) Two piece Avance Transparent Film option after step 1 Prepare and step 2 Protect have been completed.

- F. Cut the foam to the exact size of the wound and place in wound. Cut additional foam piece(s) for a bridged or mushroom application if appropriate. Ensure all foam pieces overlap and communicate.

NOTE: Rub the foam edges to remove any loose particles.

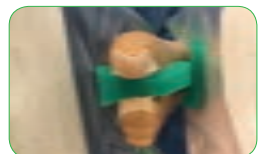
- G. Cover the foam with the Transparent film.

- H. Apply one piece of the Transparent film to the dorsum surface of the foot proximal to the wound bed. Apply a second piece of the Transparent film to the plantar surface of the foot proximal to the wound bed.

- I. Press the overlap opposing Transparent film surfaces together to seal the edges closed.



3F



3G



3H



3I

3. Apply - Option 2 (3J-3K) Two piece Avance® Transparent Film (continued)

J. Cut a hole approximately 1 cm diameter in the Transparent film where the ViewPad™ will be placed.

K. Apply the ViewPad over the hole and press firmly.



3J 1 cm hole in the Transparent film at the landing-pad relocation site.



3K

4. Commence

A. Connect the ViewPad tubing to the Avance Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



Dorsal view



Plantar view

Reference: 1. Willy, Christian, K. Anagnostakos. The theory and practice of vacuum therapy: scientific basis, indications for use, case reports, practical advice. Ulm: Lindqvist, 2006. Print. 2. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Saletac® technology in wound care. Journal of Wound Care.

Open Abdominal Dressing Application

Deep abdominal wounds may also be treated as outlined in an earlier section of these guidelines for treating dehisced wounds; however, care must be taken to avoid trauma to the fascia, which could result in the formation of fistulas. For any exposed fascia, the use of a non-adherent wound contact layer (e.g. Mepitel®) may be considered to minimize adhesion and damage.

Where the fascia is not intact and organs are exposed in the abdominal cavity, the wound is referred to as 'complex'. In these cases, patients are often managed using a damage control approach; the wound is kept open to allow subsequent re-exploration or to prevent elevated intra-abdominal pressure.¹

Reference:

1. Kaplan, M. Negative pressure wound therapy in the management of abdominal compartment syndrome. *Ostomy Wound Manage* 2004;50(11A Suppl):20S-25S.

Advanced Technique Application Guide

Open Abdomen

Avance® Foam Abdominal Kit including Avance Transparent Film and Avance ViewPad™



The Avance® Foam Abdominal Dressing Kit is indicated for temporary bridging of abdominal wall openings where primary closure is not possible and/or repeat abdominal entries may be required. Its intended use is with patients who have open abdominal wounds with exposed viscera and organs, and including but not limited to patients with abdominal compartment syndrome. It is intended for use in acute hospital settings (trauma, general and plastic surgery units) and should ideally be applied in the operating room.

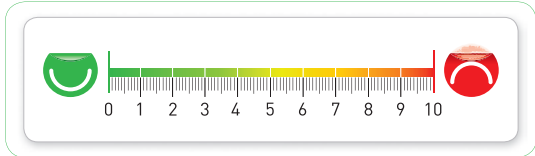
NOTE: Ensure that the patient's hemostasis has been achieved prior to application of the foam Abdominal kit.

NOTE: The term **Transparent film** is the abbreviated form of **Avance Transparent film**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. PREPARE

- A. Assess the patient for pain, and medicate as indicated and as ordered, if appropriate.
- B. Unfold the drape onto a clean surface. The kit contains:
 - 1 x Avance Organ Contact Layer
 - 2 x Avance Abdominal Foam
 - 4 x Transparent film,
 - 28x45 cm
 - 1 x ViewPad
- C. Clean and thoroughly dry the surrounding skin, and prepare the abdominal cavity by cleansing as necessary.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use.



1A



1B



1C

2. PROTECT - AVANCE ORGAN CONTACT LAYER

NOTE: Cleaning agents may lower adhesion of the film. The adhesion level on the skin will also be impaired if certain skin protection products are applied to the patient's skin, e.g. zinc paste or skin lotions.

- A. Unfold the Organ Contact Layer and center it over the abdominal cavity. If necessary cut to a size that fits.
- B. Place the Organ Contact Layer directly onto any exposed organs and into the paracolic gutters.
- C. Make sure the Organ Contact Layer covers all viscera in the abdominal cavity.



2A



2B



2C

NOTE: Moistened gloves may help facilitate an easier application of the Organ Contact Layer.

3. APPLY

- A. Cut the Avance® Foam to the dimensions of the abdominal cavity. Fill the abdominal cavity with the foam without overpacking. Use additional foam if required.

NOTE: Do not cut the foam above the abdominal cavity. Remove any fragments from the foam edges to protect the abdominal cavity from loose foam particles. Make sure that the foam does not come into contact with the viscera or surrounding skin.

- B. Remove the protective paper at the green bar labeled "1" and apply the Transparent film without stretching over the foam and periwound area, allowing for a 5-7 cm overlap.
- C. Remove the second part of the protective paper.

- D. Remove the green bar labeled "2" in order to remove the Transparent film clear backing.

- E. Cut a hole approximately 1 cm in diameter in the Transparent film towards the distal portion and firmly place the ViewPad™ over the cut hole. Remove the release film on the ViewPad and use the viewing window to correctly position the ViewPad over the cut hole and press gently to fixate the ViewPad on the film.



3A



3B



3C



3D



3E

4. COMMENCE

- A. Connect the ViewPad tubing to the Avance Tubing. Attach the canister to the Avance Max Pump and insert the Avance Tubing into the canister. Turn on the Avance Max Pump and commence therapy.

- B. Once the negative pressure is applied, the dressing will collapse. There may be a tightening sensation in the wound, but that should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks. Correct accordingly.



4A



4B

Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Abdominal Foam is -80 mmHg to -120 mmHg. The Abdominal Dressing kit components (Avance Organ Contact Layer, Avance Abdominal Foam, Transparent film and ViewPad) should be changed every 48 to 72 hours, but no less than 3 times a week, or as instructed by the clinician. The frequency of dressing changes should be based on an evaluation of the patient condition rather than standard recommendations.

Dressing Removal

- Remove the Transparent film and foam gently. If adherence of the foam to the margins of the abdominal cavity is observed, consider moistening the foam.
- Check the patient's notes for the number of foam pieces placed in the wound to make sure that no pieces of the foam are left in the abdominal cavity when the dressing is changed.
- Carefully lift the Organ Contact Layer out of the abdominal cavity. Check that the Organ Contact Layer is intact and that no pieces are left in the abdominal cavity.
- The total treatment time should not exceed 30 days.

Advanced Technique Application Guide

Skin Graft

Including Avance® Foam Dressing Kit, Avance Film with SafetaC® technology and Avance ViewPad™



Avance® *SafetaC*
TECHNOLOGY


Mölnlycke®

The Avance® Film with Safetac® technology promotes patient comfort by reducing pain, erythema, skin stripping at dressing change¹ and is designed for use on the patient with a dry periwound. The Avance NPWT System distributes negative pressure uniformly over the surface of the fresh graft.

NOTE: The term **Safetac film** referenced below is the abbreviated form of **Avance Film with Safetac technology**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

- A. Cleanse the periwound and dry thoroughly.
- B. Prepare all dressing materials.



1A



1B

2. Protect

- A. Apply Mepitel® directly over the graft and beyond the suture line by approximately 1 cm.



3. Apply

- A. Cut the foam to the same size as the Mepitel® and apply on top of the Mepitel contact layer. Do not file/thin the foam.
- B. Cover the foam and periwound area with the Safetac film. Ensure that the Safetac film extends 3-5 cm beyond the foam onto intact skin to allow firm adhesion to the skin. If two pieces of the Safetac film are required to cover the skin graft; ensure that there is a 3-5 cm overlap on to the film and a 3-5 cm overlap onto intact skin as illustrated in 3B.
- C. Cut a hole in the Safetac film approximately 1 cm in diameter at the distal portion of the dressing. Ensure that the ViewPad™ is supported by the foam.
- D. Apply the ViewPad over the hole and press firmly.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.



3A



3B



3C



3D

For narrow wounds or wounds over pressure points, please refer to the Mushroom or the Bridging Application Guide for additional dressing technique options.

4. Commence

- A. Connect the ViewPad tubing to the Avance Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.
- B. Once the negative pressure is applied the dressing will collapse. There may be a tightening sensation in the wound, but this should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for skin grafts treated with the Avance Foam is -70 mmHg to -120 mmHg. Continuous Therapy Mode is recommended for the duration of therapy. Titration of the therapy range for wounds with high exudate is based on the prescriber's recommendation.



4A



4B

Best Practice Tips for the Avance® Film with Safetac® technology:

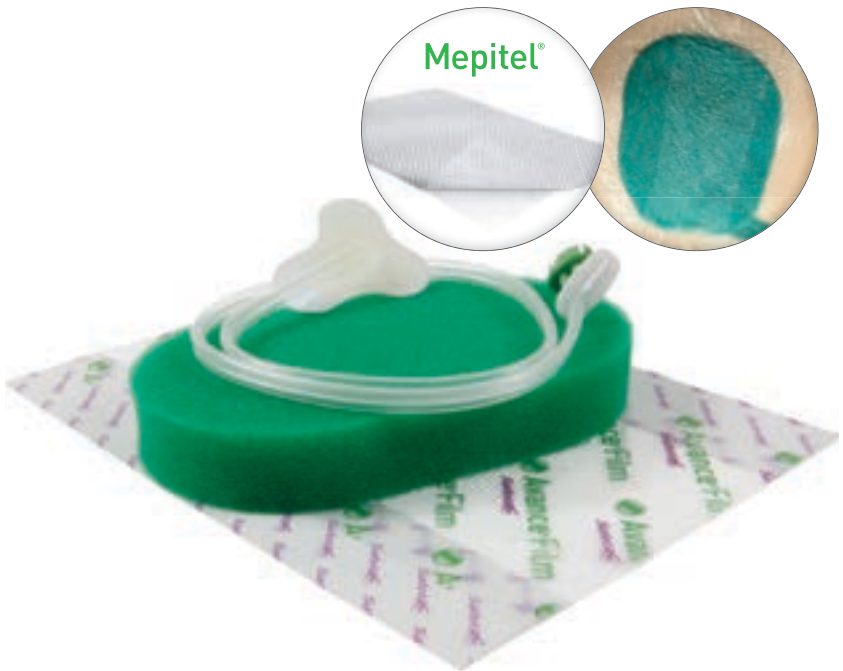
- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad™ is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac® technology in wound care. *Journal of Wound Care*.

Advanced Technique Application Guide

Skin Flap

Including Avance® Foam Dressing Kit, Avance Film with SafetaC® technology and Avance ViewPad™



Avance® *SafetaC*
TECHNOLOGY


Mölnlycke®

Skin flap procedures are undertaken to restore the integrity and function of the skin, re-establish a barrier to infection, achieve optimum cosmetic appearance and preserve joint mobility. The Avance® NPWT System objectives for flap management are to provide exudate management, improved blood flow, wound stabilization, support and stabilization to the newly positioned tissues and to provide rapid revascularization of the newly applied flap.

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance Film with Safetac technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance View Pad.

1. Prepare

- A. Cleanse the periwound and dry thoroughly.
- B. Prepare all dressing materials.



1A



1B

2. Protect

- A. Cover the intact skin of the new flap (island) with the Safetac film to within 1 cm of the suture line.
- B. Cover the periwound opposite the suture line (island) with the Safetac film, starting 1 cm from the suture line and extending outward for 3 cm creating a picture frame (window pane) around the island.



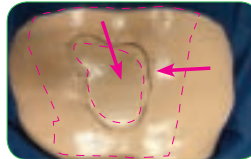
2A



2B

NOTE: A periwound picture frame (window pane) is defined as protecting intact skin that is in contact with the foam.

- C. Both sides of the suture line are now covered with the Avance Film with Safetac technology.
- D. Cut the Mepitel® into 3 cm wide strips and apply the Mepitel over the suture line, ensuring that it extends over both protective layers of the Safetac film, as referenced in steps 2A and 2B. Remove Mepitel release liner.**



2C



2D

** Remove Mepitel release liner, shown here for illustration placement purposes.

Mepitel is a hydrophobic, porous, transparent and flexible contact layer that can be used in conjunction with the Avance® NPWT System. When clinically indicated, Mepitel is applied to the wound bed to minimize pain and prevent trauma on dressing removal¹ or to protect exposed fragile tissue from direct positioning of the NPWT dressing interface such as in areas of undermining and tunnel(s) or skin grafts and flaps.

3. Apply

A. Cut the foam so that it covers the entire flap. Do not file/ thin the foam. Ensure that the foam covers the suture line and that the foam does not extend past the Safetac film periwound picture frame.

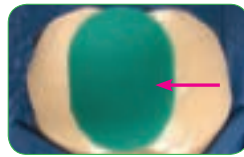
NOTE: A bridged relocation of the ViewPad™ may be indicated based on location of flap. See the Bridging Application Guide for more information.

B. Cut the Safetac film allowing an extension of 3-5 cm onto the intact skin beyond the first layer of the Safetac film. If two pieces of the Safetac film are required to cover the flap, ensure that there is a 3-5 cm overlap, as illustrated.

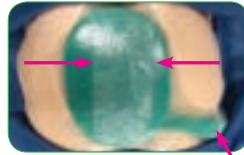
C. Cut a hole in the Safetac film approximately 1 cm in diameter at the distal portion of the dressing. Ensure that the ViewPad is supported by the foam.

NOTE: For a narrow flap, or a flap over pressure points, please refer to the Mushroom and the Bridged Advanced Technique Application Guides for more information.

D. Apply the ViewPad over the hole and press firmly.



3A



3B ViewPad relocated away from pressure point with a bridged application (not shown)

The Avance Film with Safetac technology promotes patient comfort by reducing pain, erythema, skin stripping at dressing change¹ and is designed for use on the patient with a dry periwound.

4. Commence

A. Connect the ViewPad tubing to the Avance Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Turn on the Avance Max or Flex Pump and commence therapy.

NOTE: A higher negative pressure setting range between -120 mmHg to -150 mmHg, on continuous mode is recommended. Determination of the NPWT pressure setting is based on the flap size, exudate and prescriber's recommendation. The dressing should be evaluated at 72 hours post operatively or based on the prescriber's recommendations, patient's etiology and wound assessment.

B. Turn on the Avance Max or Flex Pump and commence therapy.

Once the negative pressure is applied, the dressing should collapse.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.



4A



4B Bridged relocation of the Avance ViewPad

The prescriber may make the clinical decision to use either the Avance Film with Safetac technology or the Avance Transparent Film. The Avance Transparent Film has a gentle adhesive backing and is designed for use on the patient with a moist periwound, increased natural skin oils, or difficult anatomical geometries. If the Transparent film is used during the dressing application, it **should not** be removed in a vertical pull manner. The Transparent film should be pulled in a horizontal/lateral manner in order to release the adhesion and not lift the flap edges.

Best Practice Tips for the Avance® Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: Ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad™ is needed. Please refer to the Mushroom and the Bridging Application Guide for further instructions.

Mepiseal®¹

Mepiseal® is a viscous silicone filled in a 3ml/0.1 ounce syringe that cures into a sealant directly after application. The product is non-sterile. This patented soft silicone adhesive technology tacks gently to dry surfaces, like skin, but not to moist surfaces such as open wounds. It molds to the skin's pores, covering more skin surface and spreading peel forces upon removal to prevent skin stripping. It is designed to seal wound margins, ensuring exudate does not spread into surround skin and thus minimizing maceration. This flexible sealant is intended for use on the surrounding skin of wounds or around stomas adjacent to wounds that are difficult to dress due to uneven skin surfaces, location or mobility. Mepiseal® can be used both to prevent premature loosening of the NPWT cover film or as a surface defect filler for uneven surfaces.

Instructions For Use:

Application:

1. Apply to clean, dry periwound skin.
2. Twist the green syringe applicator cap counter-clockwise to open.
3. Press the plunger firmly and apply Mepiseal® approximately 0.5cm/5mm away from the wound edge onto the periwound skin, or at the stoma area or where NPWT cover film may require additional sealant assistance.
4. A recommended amount is 1cm wide and 2-5mm thick.
5. Apply the NPWT cover film or ostomy appliance immediately on top to fixate it in place and gently pat to firm the connection.
6. If removal of the NPWT cover film or ostomy appliance is necessary before the completion of the 10 minute curing process the Mepiseal® may leave a residue that can easily be removed with an adhesive remover wipe.
7. The opened syringe must be used within 5 minutes of opening the green twist cap as it will cure in the syringe.
8. Mepiseal® may be applied after a NPWT dressing is placed by lifting the Avance® Film with Safetac® technology, applying the Mepiseal® and then patting the film back down onto the skin.
9. Mepiseal® should be changed when the cover film is changed.

Warning:

1. Mepiseal® must never be used for injection. **For external use only.**
2. Mepiseal® is not intended as the primary fixation of life supporting devices.

Precautions:

1. Mepiseal® is not intended to be applied directly in the wound bed, or on the stoma.
2. Mepiseal® is not intended as the only fixation of the wound dressing or stoma appliance.
3. Do not spread Mepiseal® with latex or nitrile gloves as that may affect the curing process.

4. Use the syringe tip or a tongue depressor to spread Mepiseal®.
5. If Mepiseal® is exposed to stress before the 5 to 10 minutes of curing time, it may lose its intended shape and thereby product performance may be affected.
6. Repositioning of Mepiseal® means a risk of reducing the seal effectiveness. If not satisfied with the placement wait 10 minutes for it to cure, then remove and make a new application.
7. Variations in skin or room temperature may affect curing speed.
8. Do not use if package or applicator is damaged.

Disposal:

Disposal is handled according to care setting procedure or protocol.

General Application Guide

Mepiseal® with Avance® Film with Safetac® technology

Including Avance Foam Dressing Kit and Avance ViewPad™



Mepiseal® is a sealant that attaches both to the skin and the wound dressing, forming an effective liquid tight seal in difficult anatomical geometries. Mepiseal is applied to the periwound skin, fills uneven skin surfaces, and molds around wounds.

NOTE: The term Safetac® film referenced below is the abbreviated form of Avance® Film with Safetac® technology. The term foam is the abbreviated form of Avance Foam. The term ViewPad™ is the abbreviated form of Avance ViewPad.

1. Prepare

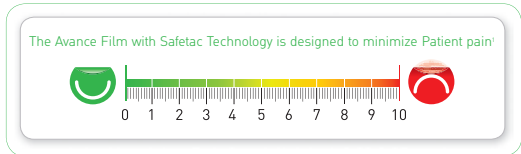
- A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.
- B. Prepare all dressing materials.
- C. Cleanse the wound bed as instructed.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.

- D. Cleanse the periwound skin and thoroughly dry.
- E. Cut the foam, away from the wound, into an appropriate size corresponding with the dimensions of the wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

- F. Cut the Safetac film to the appropriate size allowing an overlap of 3-5 cm onto surrounding skin.
- G. Place the cut foam pieces and the cut Safetac film on a clean surface.



1A



1B



1B



1C



1D



1E



1F

2. Protect

- A. Cover any areas of wound that need protection with Mepitel®. Ensure that the Mepitel does not over-lap on to intact skin and that the Mepitel is changed at every dressing application.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Safetac® film, the adhesion level on the skin will be negatively affected.



2A

For patients with multiple wounds or to off-set the ViewPad from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide, for additional technique options.

3. Apply

- A. Place the foam in the wound.
B. To open the Mepiseal®, twist the green cap counter clockwise.

NOTE: Once activated, the Mepiseal will remain ready for use for 5 minutes.

- C. Firmly press the plunger and apply the Mepiseal to the desired area on the periwound. Apply approximately 5 mm from the wound edge. Do not insert the Mepiseal into the wound.

NOTE: The Mepiseal can also spread over the periwound area using the tip of the applicator.

- D. Remove the release liner in the middle of the Safetac film. Apply the Safetac film and cover the foam and the Mepiseal. Remove the outer release liners of the Safetac film.

NOTE: Firmly press the Safetac film down onto the Mepiseal immediately to ensure a closure seal is achieved. When filling a large crevice or when building a Mepiseal dam, it is okay to wait a few minutes to allow the Mepiseal to cure before applying the cover film.

NOTE: Do not stretch or cut the Safetac film into strips as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Safetac film.

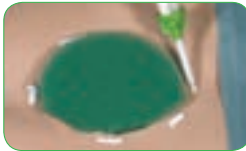
- E. Cut a hole in the Safetac film approximately 1 cm in diameter.
F. Remove the release liner on the ViewPad™ and use the viewing window to correctly position the ViewPad over the cut hole and press firmly.



3A



3B



3C



3D



3E



3F

The Avance Film with Safetac technology promotes patient comfort by reducing pain, erythema and skin stripping at the dressing change¹ and is designed for use on the patient with a dry periwound.

4. Commence

- A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Allow at least 5 to 10 minutes for the Mepiseal to cure before commencing therapy. Turn on the Avance Max or Flex Pump and commence therapy.



4A



4B

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

- B. Once the negative pressure is applied the dressing will collapse. There may be a tightening sensation in the wound, but this should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.

Best Practice Tips for the Avance Film with Safetac® technology:

- Always apply to a dry periwound. Do not use any skin protectants on the periwound.
- Do not cut the Safetac film into strips.
- Always apply the Safetac film in one piece without stretching, with a 3-5 cm overlap onto intact skin.
- When multiple pieces of Safetac film are required for large wounds: ensure that there is a 3-5 cm overlap where the Safetac film layers meet and a 3-5 cm overlap onto intact skin.
- Do not apply a periwound picture frame (window pane) with the Safetac film, except in instances of narrow wounds and when the relocation of the ViewPad is needed. Please refer to the Mushroom and Bridging Application Guide for further instructions.

Reference: 1. Davies, P., & Rippon, M. (2008). Evidence review: the clinical benefits of Safetac technology in wound care. *Journal of Wound Care*.

General Application Guide

Mepiseal® with Avance® Transparent Film

Including Avance Foam Dressing Kit and Avance ViewPad™



Avance®


Mölnlycke®

Mepiseal® is a sealant that attaches both to the skin and the wound dressing, forming an effective liquid tight seal in difficult anatomical geometries. Mepiseal is applied to periwound skin, fills uneven skin surfaces, and molds around wounds.

NOTE: The term **Transparent film** referenced below is the abbreviated form of **Avance® Transparent Film**. The term **foam** is the abbreviated form of **Avance Foam**. The term **ViewPad™** is the abbreviated form of **Avance View Pad**.

1. Prepare

A. Assess the patient for pain, and medicate as indicated and as ordered, prior to the dressing application.

B. Prepare all dressing materials.

C. Cleanse the wound bed as instructed by the clinician.

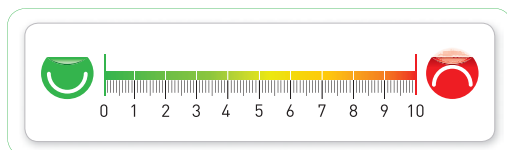
D. Cleanse the periwound skin and thoroughly dry.

NOTE: Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance Foam dressing.

E. Cut the foam, away from the wound into an appropriate size corresponding with the dimensions of the wound cavity.

NOTE: Rub the foam edges to remove any loose particles.

F. Cut the Transparent film to the appropriate size allowing an overlap of 3-5 cm onto surrounding skin.



1A



1B



1B



1C



1D



1E



1F

2. Protect

A. Cover any areas of wound that need protection with Mepitel®. Ensure that the Mepitel does not over-lap on to intact skin and that the Mepitel is changed at every dressing application.

NOTE: If certain skin protection products e.g. zinc paste or skin lotions have been applied to the patient's skin prior to application of the Transparent film, the adhesion level on the skin will be negatively affected.



2A

For patients with multiple wounds or to off-set the ViewPad™ from a pressure point, such as over a bony prominence, please refer to the Bridging Application Guide. For narrow wounds, please refer to the Mushroom Application Guide, for additional technique options.

3. Apply

- A. Place the foam in the wound.
- B. To open the Mepiseal®, twist the green cap counter clockwise.

NOTE: Once activated, the Mepiseal will remain ready for use for 5 minutes.

- C. Firmly press the plunger and apply the Mepiseal to the desired area on the periwound. Apply approximately 5 mm from the wound edge. Do not insert Mepiseal into the wound.

NOTE: The Mepiseal can also be spread over the periwound area using the tip of the applicator.

- D. Remove the protective paper from the Transparent film at the green bar labeled "1". Without stretching the Transparent film, place it over the wound and periwound area. Remove the protective paper at the green bars.

NOTE: Firmly press the Transparent film down onto the Mepiseal immediately to ensure a closure seal is achieved. When filling a large crevice or when building a Mepiseal dam, it is okay to wait a few minutes to allow the Mepiseal to cure before applying the cover film.

NOTE: Do not stretch the Transparent film as it may affect the adhesion to the skin once negative pressure is applied.

NOTE: To reduce the risk of maceration, do not apply more than two layers of the Transparent film.

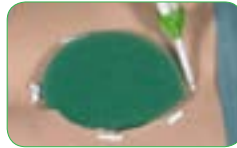
- E. Cut a hole in the Transparent film approximately 1 cm in diameter at the distal portion of the dressing, is the preferred location of the ViewPad. Ensure that the ViewPad is supported by the foam.
- F. Remove the release liner on the ViewPad and use the viewing window to correctly position the ViewPad over the cut hole and press firmly.



3A



3B



3C



3D



3E



3F 1 cm hole

The Avance Transparent Film has a gentle adhesive backing and is designed for use on the patient with a moist periwound, increased natural skin oils, or difficult anatomical geometries.

4. Commence

- A. Connect the ViewPad™ tubing to the Avance® Tubing. Attach the canister to the Avance Max or Flex Pump and insert the Avance Tubing into the canister. Allow at least 5 to 10 minutes for the Mepiseal to cure, before commencing therapy. Turn on the Avance Max or Flex Pump and commence therapy.



4A



4B

NOTE: Pressure setting should be selected in accordance with the prescriber's recommendation for the patient's etiology and wound type. For guidance, the recommended pressure range for the Avance Foam is -80 mmHg to -120 mmHg.

- B. Once the negative pressure is applied the dressing will collapse. There may be a tightening sensation in the wound, but this should resolve in a few seconds.

NOTE: If the dressing does not collapse, the system may not be sealed. Inspect the dressing, canister and tubing connections for possible leaks and correct accordingly.

Special Circumstances

Care Settings Transitions

If the patient is to be moved from an acute care setting to a post-acute care setting or the reverse, it is the responsibility of the physician and healthcare providers to ensure that adequate provision is made for the continuation of negative pressure wound therapy. The indications, contraindications, precautions and warnings should be reviewed with respect to receiving care setting. Additionally, the discharging care setting should assess the wound to complete the medical record for discharge status of the wound/patient. At that time it is appropriate to assess that the patient does not have increased risk of bleeding complications that should be monitored in a higher care setting by the prescribing physician. Upon entering the receiving care setting, the patient should have a complete wound assessment to set a baseline wound status for comparison against improvement or the development of complications. If the patient is transferring to home setting, that environment should be assessed as well as the caregiver/family for their comprehension of the device, comprehension of warning indicators and 24 hour/7 day per week resource telephone numbers.

Avance® NPWT System Use During Hyperbaric Oxygen Therapy (HBOT)

Avance® Max Pump, Avance® Flex Pump, Avance® Foam, Avance® Film with Safetac® technology, Avance® Transparent Film, Avance® ViewPad™

If a patient is on an Avance® NPWT System (to include dressing) and is concurrently prescribed HBOT the clinician should be directed to:

1. Ensure the Avance® Max/Flex pump does not enter the HBOT Chamber, it is not FDA cleared for use in the presence of oxygen enriched environment.
2. Disconnect the Avance® Tubing from the Avance® ViewPad™ at the connector.
3. Ensure that after the HBOT treatment the Avance® NPWT System is returned to the prescribed pressure and that the dressing seal is intact or a new NPWT dressing is applied.
4. Regarding the dressing, the clinician has (2) options, they are to use their clinical judgment to determine which option is appropriate for the patient.*

*Refer to **Appendix 6** for Patient letter to HBOT Clinic

Avance® NPWT System Use with Imaging Equipment

NOTE: Some components of the Avance® NPWT System dressing may be visible on some radiological images. In light of the possibility of shadowing, it is the decision of the Radiologist, or Imaging Technical Staff to have the NPWT dressing removed for the imaging procedure.

X-RAY

In the event that a patient being treated with the Avance® NPWT System requires X-ray examination, consider the following actions:

1. The Avance® Max/Flex Pump can be taken into the X-ray room and its position adjusted by the technician so that it is out of the way and there is easy access to the patient and to the X-ray machine.
2. Always check with the Radiologist or Technician if the dressing needs to be removed prior to examination.

Computerized Tomography (CT)

In the event that a patient being treated with the Avance® NPWT System should need an examination by CT scan, consider the following actions:

1. The Avance® Max/Flex Pump can be taken into the scan room and its position adjusted by the technician so that it is out of the way and there is easy access to the patient and to the scanner.
2. Always check with the Radiologist or Technician if the dressing needs to be removed prior to examination.

Magnetic Resonance Imaging (MRI)/Tomography

In the event that a patient being treated with the Avance® NPWT System should need an examination by MRI, the following procedure must be observed for the safety of the patient and the treating staff:

1. The Avance® Max/Flex Pump should **NOT** be taken into the MRI room as it can be a hazard in this environment.
2. Always check with the Radiologist or Technician if the dressing should to be removed prior to examination.
3. Ensure the Avance® Max/Flex Pump is reattached and reactivated following the procedure, providing that the time without NPWT does not exceed two hours. If the time period of treatment is anticipated to be longer than 2 hours, refer to the clinical decision process identified under the Hyperbaric Oxygen Therapy section.

NOTE: FDA informed healthcare professionals of the possibility that x-rays used during CT examinations may cause some implanted and external electronic medical devices to malfunction. Most patients with electronic medical devices undergo CT scans without any adverse consequences. However, the agency has received a small number of reports of adverse events in which CT scans may have interfered with electronic medical devices, including pacemakers, defibrillators, neurostimulators and implanted or externally worn drug infusion pumps. FDA is continuing to investigate the issue and is working with the manufacturer to raise awareness in the healthcare community. *FDA Notification 7/14/2008*

Allergic Reaction

All components and packaging of the Avance® NPWT System are latex-free. The development of irritation or erythema could indicate infection or sensitivity to the dressing components. This reaction should be reported to the prescribing physician for a clinical decision to continue NPWT and to complaint.us@molnlycke.com

Pediatric Considerations

There are currently no FDA cleared Pediatric NPWT devices. The utilization of NPWT on pediatric patients relies upon the Healthcare provider's clinical decision and application skill. There is growing NPWT research in this population that raises special considerations for epidermal skin stripping, skin absorption of skin barrier solutions, utilization of lower pressure settings and fluid management. There is a general recommendation for pressure settings to be lower in the pediatric population than the adult population and a closer monitoring for fluid loss and dehydration. Clinical considerations for pressure settings were based on patient age, pain response, nutritional status, coagulatory ability, underlying structure and type and quality of tissue over which the NPWT is placed.¹

Reference: 1. Baharasanti MM Use of Negative Pressure Wound Therapy in the treatment of neonatal and pediatric wounds: A retrospective examination of clinical outcomes. *Ostomy Wound Manage.* 2007;53(66):75-85.

Avance® NPWT System and Dressing Application Troubleshooting

The Avance® NPWT System is easy to operate and clinically effective. Patients can sometimes present with unique clinical challenges, especially when it comes to wound care. The following guidance is designed to assist clinicians in obtaining the optimum results for their patients.

Clinical Presentation	Importance	Cause/Corrective Action
Ineffective Dressing Seal	High	<p>It is very important to try and maintain a seal. Once negative pressure is applied, the foam dressing will have a wrinkled 'raisin-like' appearance and be firm to the touch. When the pump is turned on, the pre-set pressure is shown on the pump unit display. The pump will appear to make a noise for a few seconds as it builds up towards this pressure. If the pump continuously makes a noise for more than 45 seconds, it may be likely that the system has an air leak.</p> <ul style="list-style-type: none"> - If the dressing does not collapse, the system may not be closed. Inspect the dressing site and use additional adhesive film to maintain a seal. - Review that the Avance® Film was gently placed onto the foam/skin and not stretched. Stretching the Avance® Film or Safetac® then applying negative pressure can cause the dressing to lift from the skin unnoticeably but allow air into the system. - Review that the foam was not forcibly depressed during Avance® Film application. - Check that there are no folds at the edge of the Avance® Film that could allow air into the system. - A stethoscope may assist with detection of air at edges and anchor pad. - Cut 3 strips of the same Avance® Film and place around the anchor pad to secure if air leak is suspected. - If the wound has undermining or tunnels or is a antimicrobial (PHMB) gauze/foam combination, temporarily increase the pressure then return to the prescribed pressure, to pump pressure. - Check that the Avance® ViewPad™ connector is firmly attached and not kinked. - Check that the canister is not damaged, replace if necessary. - Check that the canister seal is intact and in place, replace if necessary. - Contact Mölnlycke Health Care NPWT Customer Service.

Clinical Presentation	Importance	Cause/Corrective Action
Pain During Therapy	Moderate/High	<p>Analgesia may be required for some patients.</p> <p>If this does not help:</p> <ul style="list-style-type: none"> - Then consider lowering pressures in -5mmHg increments until the issue resolves. - If there is sudden onset of pain immediately following dressing change: check that the negative pressure is set correctly; and ensure that dressings have been applied correctly. - If necessary, correct and restart therapy. - If the discomfort is at the periwound area, check that the foam dressing is not in direct contact with intact skin. - If there is a gradual increase in pain/discomfort in a wound which has previously been pain-free, check for signs of infection.
Periwound Excoriation	Moderate	<ul style="list-style-type: none"> - Periwound excoriation can occur if the foam comes into contact with intact skin at the wound margin. Remove the dressing and ensure correct dressing application. - Periwound excoriation can also occur if wound exudate builds up within the dressing and comes into contact with intact skin. - If the patient has Intermittent therapy applied consider that this therapy may not be suitable for the patient due to high levels of exudate. - Address all urinary and fecal incontinence issues as per local policy if the wound is in close proximity to these areas. - Check that the Avance® NPWT System is working, check for signs of a poor seal ('whistling' sound, audible/visual alarm, dressing has not collapsed into the wound), make sure the tubing is not kinked or blocked. - If exudate levels are high, consider increasing the negative pressure setting by -5mmHg increments as tolerated. Remember to reduce the level of negative pressure to the recommended therapeutic setting when appropriate.

Clinical Presentation	Importance	Cause/Corrective Action
Odor/Smell	Moderate	<p>Some odor may be noted at dressing change and this is normal.</p> <ul style="list-style-type: none"> - A significant increase in odor may be an early indication of infection. - Fecal odor may indicate the presence of infection with fecal flora or the presence of bowel fistulas (abdominal wounds only). Investigate and take appropriate action.
Bleeding - Heavy	High	<p>If large amounts of blood (dark red or bright red) are seen in the tubing or canister,</p> <ul style="list-style-type: none"> - Stop Avance® NPWT immediately - Immediately report to the prescribing physician - Leave dressing in place - Take measures to stop bleeding such as applying pressure. - Closely monitor patients if they are receiving anticoagulation therapy.
Bleeding - Light	Moderate	<p>Some light bleeding may be seen on dressing change, especially if the previous dressing was adhered to the wound bed.</p> <ul style="list-style-type: none"> - If pale pink exudate is observed in the canister, monitor the levels of exudate. - Consider using a wound contact layer (e.g. Mepitel®) under the foam dressing.
Peri wound bruising	Low	<p>Minor bruising will occur if dressing material or tubing is allowed to come into direct contact with the intact skin around the wound.</p> <ul style="list-style-type: none"> - Remove the dressing. - Inspect and document the affected area. - Ensure correct placement of the foam into the wound. - If the skin is broken, consider applying a dressing, such as Mepilex® Lite with Safetac® Technology, over the damaged area prior to reapplication of the Avance® NPWT System. - Monitor and document peri wound progress.

Clinical Presentation	Importance	Cause/Corrective Action
Periwound Blistering	Moderate	<p>Blistering may occur to the periwound skin if:</p> <ul style="list-style-type: none"> - The film was applied too tightly - The film is pulled off without stretching it laterally to release adhesive - The patient has friable skin - Ensure the dressing is applied and removed as instructed - Consider the use of Avance® Film with Safetac® technology to minimize the risk of blistering.
Exudate Volume - Increase	Moderate	<ul style="list-style-type: none"> - In some individuals, there may be some increase in wound exudate following the initiation of the Avance® NPWT System. - Monitor the amount, consistency and color of exudate. - If there is a marked increase in wound exudate production (without signs of infection e.g. pyrexia, increased pain, erythema/cellulitis), continue therapy but inform the prescribing physician. - Record amount in canister to accurately assess fluid loss.
Exudate Volume - Decrease	Low	<ul style="list-style-type: none"> - It is normal for exudate levels to drop following initiation of NPWT. - This is not necessarily an indication to discontinue therapy.
Exudate Consistency	Moderate/ High	<ul style="list-style-type: none"> - Some changes in wound exudate consistency will normally occur following initiation of the Avance® NPWT System. - If the exudate becomes heavily blood-stained, thick and/or cloudy, changes color, or appears to contain small bowel effluent/bile (in abdominal wounds only). - Stop therapy and immediately contact the prescribing physician

Clinical Presentation	Importance	Cause / Corrective Action
Adherent Antimicrobial (PHMB) Gauze or Foam	Moderate	<ul style="list-style-type: none"> - Saturate adherent dressing with sterile water or sterile saline before trying to remove it. The ingrowth of granulation tissue and/or capillaries into foam can occur if granulation is rapidly occurring. Granulation rates can vary. - Each wound and each patient will dictate the frequency of dressing changes, along with the clinician's experience and recommended manufacturer's guidelines. - Consider more frequent dressings changes for this type of patient and possible use of a non-adherent wound contact layer (e.g. Mepitel®) between the wound bed and the interface material.
Infection	High	<ul style="list-style-type: none"> - The Avance® NPWT System may be of benefit in managing wounds with a high bacterial burden as it can draw bacteria-laden exudate away from the wound. - Clinicians must use caution when treating infected wounds with NPWT and should consider the use of appropriate systemic antimicrobial therapy. - The frequency of dressing changes may need to be increased if infection is present.
Wound Deterioration	High	<p>Some changes to the wound appearance may occur during the use of the Avance® NPWT System. If the wound is deemed to have deteriorated, the clinician should ensure that:</p> <ul style="list-style-type: none"> - Therapy has been delivered correctly (dressing technique, pressure settings, continuous/intermittent therapy) - Wound contact layer has been used (if appropriate) - Wound has been adequately debrided - Bacterial burden has been managed - Wound infection has been treated (if appropriate) - If the cause of the deterioration cannot be identified, the patient's prescribing physician should consider discontinuation of Avance® NPWT and initiation of alternative wound management strategies.

Clinical Presentation	Importance	Cause / Corrective Action
Distal Circulation	High	<p>When using the Avance® NPWT System to treat wounds on a limb, regularly check the circulation in the distal limb:</p> <ul style="list-style-type: none"> - Especially in individuals with vascular disease or circumferential wounds. - Check that the film has not been circumferentially applied to any limb. This may cause a tourniquet effect. - If circulation is compromised, stop NPWT immediately, remove the dressing and report to the prescribing physician.
Visible Wound Bed	High	<p>If there is visible wound bed after the commencement of negative pressure:</p> <ul style="list-style-type: none"> - Create a small slit in the Avance® Film over the exposed tissue - Insert appropriate size piece of foam - Seal the slit with a piece of like Avance® Film - Restart negative pressure at the prescribed pressure

Appendices

Appendix 1 – Safety Instructions

Cautions:

1. Negative Pressure Wound Therapy should only be used under the prescription and supervision of a licensed physician.
2. The prescribing physician is responsible for applying his/her best medical judgment when using this system. Prior to use, the physician(s) treating the wound must assess how to best use the system for an individual's wound.
3. Apply the prescribed setting for negative pressure therapy to the pump. Care should be taken not to accidentally change pressures once set, as the efficiency of the therapy may be reduced. This accidental change could also be caused by pets or children.
4. The electrical supply is of the type indicated on the power adapter.
5. Check that the power adapter cord is free from damage and is positioned so as not to cause an obstruction or injury, e.g. strangulation.
6. Do not position the pump or power adapter in a way that makes it difficult to disconnect from the wall outlet.
7. Do not position the pump such that makes it difficult to disconnect the canister or drain plug.
8. Ensure the power adapter lead, drain tube or vacuum pump cannot become trapped or crushed, e.g. via raising or lowering of bed or bed rails or any other moving object. All tubes must be free of kinks, twists, properly connected and positioned so as not to cause an obstruction or injury.
9. Do not place the vacuum pump or power adapter on or near a heat source.
10. Never use the power adapter while placed on top of or near to material which is flammable or can be damaged by heat (The supplied power adapters plug directly into the power source partly mitigating this issue).
11. The Avance® Max Pump must only be used with the approved power adapter supplied by Mölnlycke Health Care (see IFU for Avance® Max and Avance® Flex Pumps).
12. The Avance® Flex Pump must only be used with the approved power adapter supplied by Mölnlycke Health Care (refer to the Instructions For Use (IFU) booklet for Avance® Max and Avance® Flex Pumps).
13. The Avance® NPWT System (pump and power adapter) is not used in the presence of flammable anesthetics or in an oxygen enriched environment.
14. Suitable for Continuous or Intermittent Therapy use
15. Not suitable for sterilization
16. The materials used in the manufacture of all components of the system comply with the required fire safety regulations
17. Mölnlycke Health Care advises against smoking while the system is in use, to prevent the accidental secondary ignition of associated items which may be flammable.

18. Do not modify any of the medical devices or accessories in any way or use unspecified parts.
19. Choking may result if a child swallows a small part that has become detached from the Avance® NPWT System equipment.
20. An Avance® Foam/Gauze dressing kit must be used with the Avance® Max/Avance® Flex System to carry out NPWT.
21. Please refer to the dressing kit 'Instructions for Use' leaflet (supplied with dressing kit) for dressing application and setup. Note that the dressings in the set are sterile and for single patient/single use only, not intended for reuse.
22. Avance® NPWT System is intended for home healthcare and professional healthcare facility environments.
23. The Avance® NPWT Pump device is intended to be used with its carrying case or bed holder.
24. Do not connect the Avance® NPWT System to any other medical device or equipment.
25. When the canister is not fitted on the pump, it is essential that the circular opening above the pin receptacle site on the rear face of the unit is not blocked or covered. This receptacle must be kept clear except when a canister is applied.
26. The pump and power adapter should be cleaned between patient use (refer to Care and Maintenance Section).
27. The Avance® Max/Avance® Flex pump battery is installed inside the unit and is not accessible by users. Battery replacement should only be carried out by qualified service personnel.
28. Wireless equipment such as mobile phones should be kept at least 10ft. or 3.3m away from this equipment.
29. The above warnings, cautions and any safety considerations should be observed on a routine and regular basis, not only upon installation.
30. The Avance® Max/Flex Pump should not be used for suctioning explosive, easily flammable or corrosive liquids.
31. Do not disconnect the pump power supply by pulling on the electrical connecting cord.
32. Do not place the Avance® Max/Flex Pump, charger or docking station in water or other liquids and keep the charger connector away from moisture or immersion in water.
33. Do not dry the Avance® Max/Flex Pump with microwaves.
34. The Avance® Max/Flex Pump must remain in an upright position during use.

Precautions:

1. In-growth of tissue into wound filler material may occur if the dressing is not changed in accordance with recommendations or as appropriate for the wound condition of the individual patient.
2. Superficial or retention sutures should be protected with a non-adherent wound contact layer, e.g. Mepitel® in conjunction with Avance® NPWT treatment.
3. Patients with grossly infected purulent wounds or wound related sepsis should be debrided before application of the Avance® NPWT System. In these cases the reticulated sponge may become a closed abscess due to poor to absent fluid flow of thick purulence. These wounds may require more frequent dressing changes to inspect the sponge until amount of exudate or texture of exudate decreases significantly.^{45, 46, 47}
4. Extra care should be taken when treating wounds in close proximity to organs or large veins and arteries.
5. Avance® Transparent Film should not be used on patients who are sensitive to acrylic adhesive.
6. Stretching the film during application may cause damage to the surrounding skin when negative pressure is applied.
7. Application of certain skin protection products e.g. zinc paste or skin lotions to the patient's skin prior to application of the film, can affect the ability of the film to adhere securely.
8. For additional information on the Avance® NPWT System, including additional safety considerations, see the Avance® Negative Pressure Wound Therapy Instructions For Use, for the Avance® Max/Flex Pump.

Warnings:

1. Do not position Avance® dressings on exposed organs, large veins and arteries, tendons, bones or nerves. To prevent puncture of blood vessels or organs, and damage to tendons, bones and nerves, sharp edges or bone fragments must be eliminated from the wound area or covered with a non-adherent wound contact layer (e.g. Mepitel®).
2. For wounds on lower leg or foot, if there is no/limited transportation of fluid/exudate from the wound into the canister, there is a risk of maceration of the wound bed and the surrounding skin and consequently a potential risk of wound infection. In order to avoid this, use a negative pressure setting of at least -100mmHg and/or place the Avance® Pump together with the tubing at the same level/height as the wound.
3. Blockage of tubing may occur. Routinely check that the negative pressure therapy is active.
4. If more than one piece of wound interface material is used, always count the pieces and document the total in the patient's medical record. This is to ensure that all pieces are removed when the dressing is changed.
5. Do not cut the wound filler above the wound site, as fragments may fall into the wound.
6. Always document the use of Mepitel® in the patient's medical record to ensure that no Mepitel® is left in the wound when the dressing is changed.

7. If bleeding suddenly develops or an ongoing bleed increases during NPWT, immediately discontinue treatment, leave dressing in place, consult medicinal assistance and take measures to stop the bleeding.
8. Do not place wound interface into unexplored or blind tunnels or non-enteric fistulas.
9. Do not use NPWT on wounds with necrotic tissue or eschar unless adequately debrided.
10. Ensure contact between all pieces of wound interface material for even distribution of negative pressure.
11. Do not over-pack wound interface into any area of the wound, as this could damage tissue, affect exudate removal, or affect delivery of negative pressure.
12. Do not overlap wound filler onto intact skin.
13. For wounds smaller than the Avance® ViewPad™, consider a Mushroom Technique Dressing or Bridging Technique Dressing.
14. If the dressing does not have a “raisin-like” appearance when the negative pressure is applied, check that the Avance® ViewPad™ is placed directly over the cut hole in the film.
15. Do not use oxidizing agents such as hypochlorite solutions or hydrogen peroxide prior to use of the Avance® Foam dressing.
16. Contamination of silicone adhesive on top of the film prior to application of the Avance® ViewPad™, can affect the ability of the Avance® ViewPad™ to adhere securely.
17. Do not position small narrow pieces of foam into areas of tunnels or undermining without the use of Mepitel® to prevent breakage or retention of foam pieces upon removal.
18. If there is risk for skin imprints from the tubing or the clamp on the Avance® ViewPad™, place (e.g. a piece of Mepilex® Lite), an absorbent soft silicone dressing, between skin and tubing/clamp.
19. Do not reuse dressing materials. If reused, performance of the product may deteriorate and/or cross contamination may occur.
20. Dressing kits are provided sterile. Do not use if inner package is damaged or opened prior to use. Do not re-sterilize.
21. The Avance® NPWT System is fitted with a sensitive warning system to ensure safe and effective operation of the system. These warnings will alert the patient or healthcare provider that something has altered the normal software function of the pump, either at the wound bed or at the pump.
22. If the Avance® NPWT System Pump detects any faults, an audible warning indicator will sound a beeping noise and a description of the detected warning will appear on the display screen. Some warning indicators will sound audible beeps and the negative pressure will be maintained – where possible. Other warning indicators will cause the pump to stop negative pressure until corrective action has been taken. Please examine all warning indicators and provide corrective action. Press the Mute button (X symbol) on the pump panel to silence the audible beeps, however these will return in 10 seconds until corrective action upon the displayed warning.

Appendix 2 - Frequently Asked Questions¹

1. What can be done to prevent skin maceration?
 - a. Ensure that the periwound is clean of scaled skin, crusted exudate and moisture before application of the Avance® Film. This periwound debris may autolyse under the occlusion of the Avance® Film dressing, increasing the risk of periwound maceration.
 - b. If the location of the wound is in an area of moisture (e.g. buttock fold) it may be functionally easier to apply the Avance® Transparent Film as this dressing allows for the use of skin barrier solution to the periwound prior to application, if clinical assessment indicates.
2. Can two wounds be treated with the same Avance® ViewPad™?
 - a. Yes, utilizing the Bridging Technique.
NOTE: Never connect infected wounds into a bridged technique.
3. If the wound is small how can the periwound be protected from Avance® ViewPad™ pressure?
 - a. Utilize the Mushroom Technique or the Bridging Technique to ensure that the base of the Avance® ViewPad™ is completely supported by a foam base.
4. How can an air leak be prevented in difficult anatomical geometries?
 - a. Utilize the Avance® Transparent Film with an application of skin barrier solution prior to application, if clinical assessment indicates.
 - b. Utilize an overlapping strip method to mold around difficult shapes.
 - c. Utilize a Sandwich technique application by placing opposing sheets of Avance® Transparent Film on either side of the wound to seal the area.
5. How can air leaks be prevented around the base of the Avance® ViewPad™?
 - a. Ensure the Avance® ViewPad™ is fully supported on a foam base.
 - b. Cut 3 strips of the same Avance® Film used over wound. Place the strips over each side of the base rim of the Avance® ViewPad™ extending onto the Avance® Film surface to anchor.
6. How can a seal be achieved with a drainage tube next to the wound?
 - a. Utilize a Sandwich technique application to incorporate the drain in the NPWT dressing
7. How can pain be reduced with foam removal?
 - a. Assess pain and record in patient medical record.
 - b. Always release Avance® Film by lifting a corner, hold the skin surface in place with one hand while pulling the cover film horizontally away from the wound. Fold the Avance® Film back on itself gradually moving around the entire wound in this manner. Once all the film is stacked on the foam, gradual remove the foam in this same fold back manner using one of the options below for additional pain control if necessary.
 - i. **Option 1** - Discontinue the negative pressure 20-30 minutes prior to removal, remove foam.
 - ii. **Option 2** - Turn off the pump, clamp the canister tubing, disconnect the Avance® ViewPad™ tubing at the connector, inject sterile normal saline into the tube line to saturate the wound bed foam, remove foam.

- iii. **Option 3** - Following steps in **Option 2** inject a prescribed local anesthetic.
 - iv. **Option 4** - Utilize antimicrobial (PHMB) gauze as an interface material with the Avance® ViewPad™ or a drain for suction.
8. How can good adhesion of the cover film be achieved?
 - a. Avance® Transparent Film should be applied without tension so that when negative pressure is supplied to the foam the film will conform to the skin surface and not pull the skin surface under the tension.
 - b. Avance® Transparent Film with Safetac® technology should always be applied gently onto the periwound surface to allow the silicone technology to adhere to the irregularities of the topical geography of the skin surface.
 9. How can hypergranulation be prevented?
 - a. Cover the faster granulating areas with several layers of Mepitel® to reduce the impact of negative pressure against the reticulated foam.
 10. How can foam be prevented from shifting over a skin graft?
 - a. Ensure that the non-adherent wound contact layer is larger than the size of the applied graft by 1cm and covers the sutures/staples if present. The foam should be cut to the same size as the non-adherent contact layer. This slight overage in size from the graft size will prevent traction on the graft edge when negative pressure is applied to the foam.
 11. How can the shape of the foam be increased?
 - a. The foam can be cut in a spiral to create a single long length. At any starting point on the foam cut inward on the foam about 1cm or desired depth (this will become the width/thickness of the foam once the cut is complete). Now turning the scissors perpendicular to the inward cut line, follow the shape of the foam continuously around until the center end is reached. This is often referred to as a "cinnamon bun" cut or a "serpentine cut".
 12. Can petroleum or oil based products affect the adhesion Avance® Film to the skin surface?
 - a. Yes. Change gloves after contact with petroleum or oil emulsion coated materials, as these substances can negatively affect the adhesion of the Avance® Film with Safetac® technology and Avance® Transparent Film.

Reference:

1. Willy, C., The theory and practice of vacuum therapy: scientific basis, indications for use, case reports, practical advice. Lindqvist book-publishing ulm 2006.

Appendix 3 – Avance® Max QRG

Each device is provided with printed instructions. The Instruction for Use Booklet (IFU) and a Quick Reference Guide (QRG) are provided to help clinicians and patients with device operations and other important information.

REVISION 2017-01

Avance® Negative Pressure Wound Therapy Quick Reference Guide

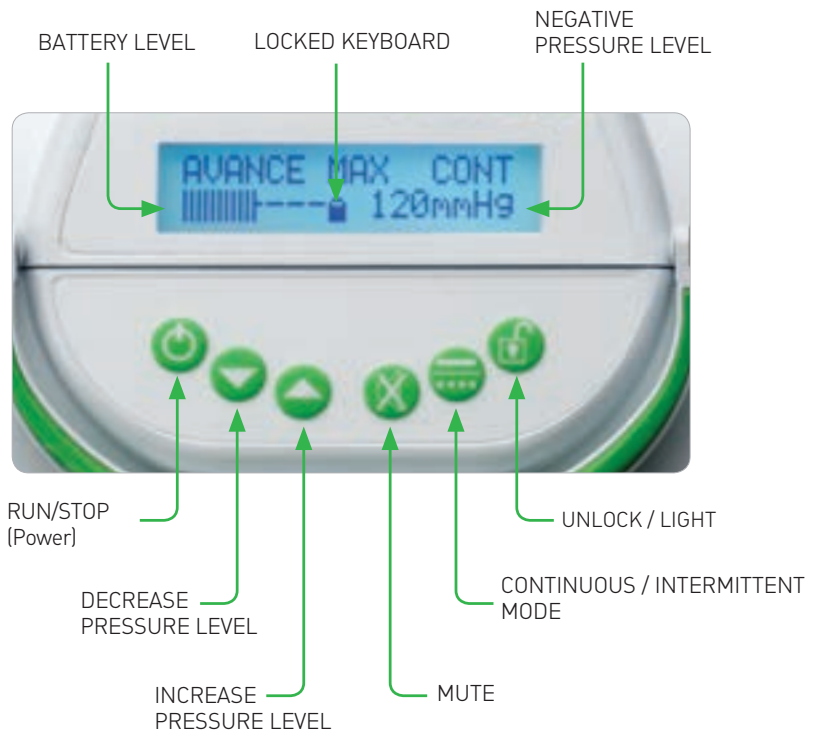


Avance® Max Pump



Before initiating NPWT treatment, read the Instructions For Use, indications, contraindications, warnings, precautions and safety instructions.

Display

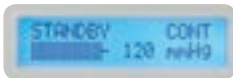


Power On / STANDBY mode



On: Press and release RUN/STOP (Power) button

The pump is now in STANDBY mode.



When turning the pump on the first time, the default settings will be -120 mmHg and continuous therapy. Ensure the pressure setting is adjusted to the pressure level ordered by the prescribing physician prior to initiation of therapy.

Change Pressure level

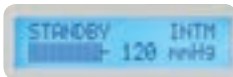


When the buttons are unlocked, pressures can be modified in STANDBY and RUN mode, in 5 mmHg increments between -60 mmHg and -180 mmHg using the up and down arrow buttons.

Change between Continuous and Intermittent



Switch between therapy modes: First unlock buttons if locked. Press the CONTINUOUS/INTERMITTENT mode button until the pump beeps to confirm change of mode.



When in INTERMITTENT therapy mode, the pump will provide negative pressure therapy for periods of 5 minutes followed by a 2 minute rest period with no negative pressure provided.

Start the Therapy



START the therapy: Press the RUN/STOP (Power) button again.



If not adjusted, the pump will begin operation at the default pressure of -120 mmHg, and CONTINUOUS therapy mode. The selected negative pressure level is shown on the display screen. Ensure the pressure setting is set to the pressure level ordered by the prescribing physician prior to initiation of therapy.

Unlock the buttons



After 1 minute in RUN mode, the locked key function is activated. This is shown with a padlock icon.

Press the LOCK/UNLOCK button for 3 seconds to unlock the buttons.

The pump will lock again 1 minute after the last button operation.



Stop therapy and power off the system



STOP the therapy: First unlock buttons if locked. Press the RUN/STOP (Power) button until the unit beeps. The pump will power off.



Power Off the system from STANDBY mode



If in STANDBY mode, the system will self power off when inactive for 1 minute when on battery only operation.

You can force power off from STANDBY mode by pressing the MUTE button for 3 seconds until the unit beeps.

Illumination of the screen



Pressing the MUTE button will illuminate the display for 10 seconds.

When the AC (wall) power supply is connected, the display is always illuminated.

Mute the warnings



Press the MUTE button to silence the alarm and to clear the message from the display screen.

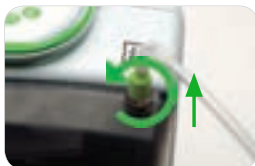
Warnings

Warning	Display / Warning	System Operation	Remedial Action
No Canister	'No CANISTER' / Warning beeps	Will not activate RUN mode from STANDBY mode Reverts to STANDBY mode if canister is removed when in RUN mode	Attach a new canister (see next section) If the warning continues, contact the helpline at the number below
Canister Full	'Canister Full' / Warning beeps until muted Display re-occurs after 10 minutes until remedied	Will not activate RUN mode	Replace the canister
Leak Detected	Leak Detected / Warning beeps, display flashes	Run mode continues Alarm is mutable but reoccurs if no action taken	Identify the location of leak Seal the source of the air leak Use no more than two layers of Avance® Film
Blockage	Blockage /Warning beeps, display flashes	Continues in RUN mode Warning is mutable but reoccurs if no action taken	Ensure tubing clamps are open Resolve any blockages in the tubing If the warning repeats, place unit at or below wound site and contact technical support

Change the canister and tubing



To change the canister make sure the pump is powered off (if still running, press and hold the UNLOCK button, followed by the RUN/STOP (Power) button).



Clamp the canister tubing and remove by turning counter-clockwise and lifting it out of the tubing port.



Remove the sealing plug from its original location of the canister. Use the plug to seal the tubing port.



Rotate the locking knob 1/4, turn counter-clockwise and remove the canister. Dispose of the used canister according to local clinical waste policy.



If continuing NPWT, attach a new canister. Remove the styrofoam pin guard on new canister prior to attaching. Attach the canister to the flat face of the pump by matching up the rear location pegs and rotating the locking knob 1/4 turn clockwise to secure. Ensure the canister is correctly located and secured. Otherwise a NO CANISTER message will appear and the pump will not operate.



Attach the tubing to the canister. Push down gently and twist clockwise to lock. Unclamp the canister tubing.



Power on the pump by pressing the RUN/STOP (Power) button. The pump is now in STANDBY mode. Ensure the pressure is set to the prescribed level by pushing the up or down arrows.



Press the RUN/STOP (Power) button again to start the therapy.

Avance® Negative Pressure Wound Therapy Quick Reference Guide

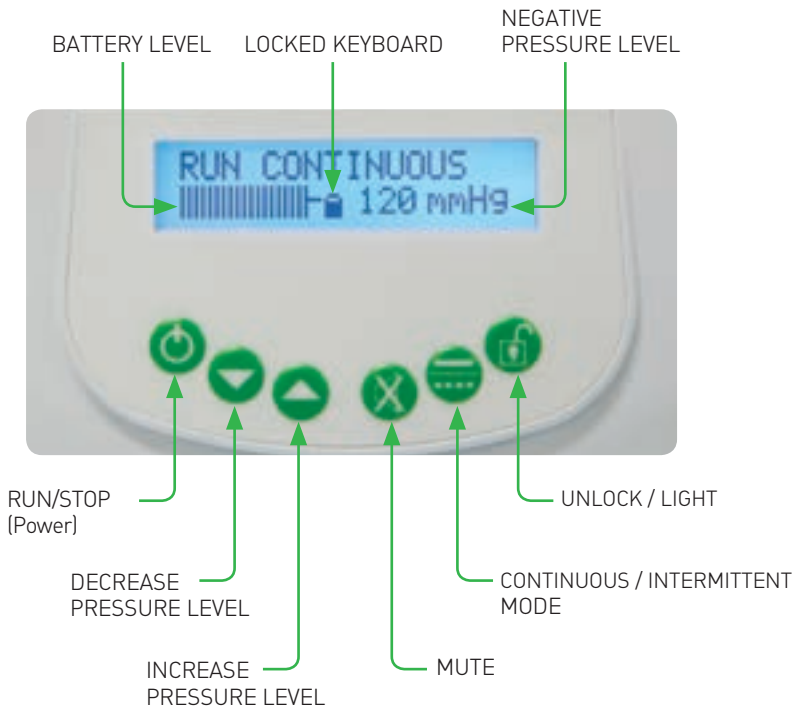


Avance® Flex Pump



Before initiating NPWT treatment, read the Instructions For Use, indications, contraindications, warnings, precautions and safety instructions.

Display

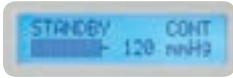


Power On / STANDBY mode



On: Press and release RUN/STOP (Power) button

The pump is now in STANDBY mode.



When turning the pump on the first time, the default settings will be -120 mmHg and continuous therapy. Ensure the pressure setting is adjusted to the pressure level ordered by the prescribing physician prior to initiation of therapy.

Change Pressure level

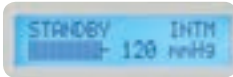


When the buttons are unlocked, pressures can be modified in STANDBY and RUN mode, in 5 mmHg increments between -60 mmHg and -180 mmHg using the up and down arrow buttons.

Change between Continuous and Intermittent



Switch between therapy modes: First unlock buttons if locked. Press the CONTINUOUS/INTERMITTENT mode button until the pump beeps to confirm change of mode.



When in INTERMITTENT therapy mode, the pump will provide negative pressure therapy for periods of 5 minutes followed by a 2 minute rest period with no negative pressure provided.

Start the Therapy



START the therapy: Press the RUN/STOP (Power) button again.



If not adjusted, the pump will begin operation at the default pressure of -120 mmHg, and CONTINUOUS therapy mode. The selected negative pressure level is shown on the display screen. Ensure the pressure setting is set to the pressure level ordered by the prescribing physician prior to initiation of therapy.

Unlock the buttons



After 1 minute in RUN mode, the locked key function is activated. This is shown with a padlock sign.

Press the LOCK/UNLOCK key for 3 seconds to unlock the buttons.

The pump will lock again 1 minute after the last button operation.

Stop therapy and power off the system



STOP therapy: First unlock buttons if locked. Press the RUN/STOP (Power) button until the unit beeps. The pump will power off.

Power off the system from STANDBY mode



If in STANDBY mode, the system will self power off when inactive for 1 minute when on battery only operation.

You can force power off from STANDBY mode by pressing the MUTE button until the unit beeps.

Illumination of the screen



Pressing the MUTE button will illuminate the display for 10 seconds.

When the AC (wall) power supply is connected, the display will stay illuminated.

Mute the warnings



Press the MUTE button to silence the alarm and to clear the message from the display screen.

Warnings

Warning	Display / Warning	System Operation	Remedial Action
No Canister	'No Canister' / Warning beeps	Will not activate RUN mode from STANDBY mode Reverts to STANDBY mode if canister is removed when in RUN mode	Attach a new canister (see next section) If the warning continues, contact the helpline (see number on last page)
Canister Full	'Canister Full' / Warning beeps until muted Display re-occurs after 10 minutes until remedied	Will not activate RUN mode	Replace the canister
Leak Detected	'Leak Detected' / Warning beeps, display flashes	RUN mode continues Alarm is mutable but re-occurs if no action taken	Identify the location of leak Seal the source of the air leak Use no more than two layers of Avance® Film
Tilt Warning	'Tilt WARNING' /Warning beeps after 30 seconds	Continues in RUN mode	Put the pump back in the upright position
Blockage	Blockage /Warning beeps, display flashes	Continues in RUN mode Warning is mutable but re-occurs if no action is taken	Ensure tubing clamps are open Resolve any blockages in the tubing If the warning repeats, place unit at or below wound site and contact technical support

Change the canister and tubing



To change the canister make sure the pump is powered off (if still running, press and hold the UNLOCK button, followed by the RUN/STOP [Power] button).



Clamp the canister tubing and remove by turning counter-clockwise and lifting it out of the tubing port.



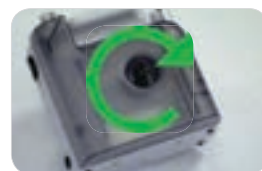
Remove the sealing plug from its location on top corner of the canister. Use the plug to seal the tubing port.



Rotate the locking knob 1/4, turn counter-clockwise and remove the canister. Dispose of the used canister according to local clinical waste regulations.



If continuing NPWT, attach a new canister. Remove the styrofoam pin guard on new canister prior to attaching. Attach the canister to the flat face of the pump by matching up the rear location pegs and rotating the locking knob 1/4 turn clockwise to secure. Ensure the canister is correctly located and secured. Otherwise a NO CANISTER message will appear and the pump will not operate.



Attach the tubing to the canister. Push down gently and twist clockwise to lock. Unclamp the canister tubing.



Power on the pump by pressing the RUN/STOP [Power] button. The pump is now in STANDBY mode. Ensure the pressure is set to the prescribed level by pushing the up or down arrows.



Press the RUN/STOP [Power] button again to start the therapy.



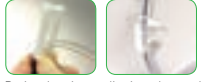



Appendix 5 – Troubleshooting Guide

Avance®

NEGATIVE PRESSURE WOUND THERAPY

Avance® Flex and Avance® Max NPWT System Troubleshooting

The Avance® Flex and Avance® Max systems have been designed to deliver Negative Pressure Wound Therapy (NPWT) across a variety of care setting environments and wound types. This guide will help users understand the systems' behavior and how to potentially resolve any warning(s) or common issues when using negative pressure wound therapy.

Issue	Conditions	Action / Resolution	Helpful Tips	Supporting Images
Blockage Warning(s)	Blockage condition detected or air flow constricted	<ul style="list-style-type: none"> Please reference User Manual or Quick Reference Guide for support on blockage warning 	<p>The blockage warning indicator may be deactivated if there are no signs of excessive exudate accumulation in or around the dressing and after the tubing has been examined to determine that the tubing is not clamped or kinked and the foam is compressed in the wound area. After deactivation, the patient/clinician should continue monitoring for signs of changes in the condition of the wound, that could subsequently cause blockages.</p> <p>NOTE: Have clinician reassess if blockage alarm should be reactivated at next dressing change.</p>	See Instructions / Quick Reference Guide 
Constant Pump Noise	<p>Air leaks within the system, potentially triggering a leak warning</p> <p>Note: Pump noise every few seconds is normal. If pump noise is continuous, troubleshooting to identify leak location(s) will be needed.</p>	<ul style="list-style-type: none"> Ensure all tubing connections are secured Ensure dressing is completely compressed, with minimal wrinkles in the film 	<ul style="list-style-type: none"> Depressing the film around the edges of the wound with your fingers may help smooth out film wrinkles. If using Avance® Film with Safetac®, ensure no skin prep or "window panning" of peri wound area is done Ensure the hole cut for the interface pad is about 1 cm in size (about the size of the button on Avance® Max or Avance® Flex device) <p>If the issue remains, the dressing may need to be re-applied.</p>	
Fluid Not Moving / Pooling	<p>Wound fluid not flowing toward canister, potentially triggering a blockage alarm can be attributed to:</p> <ul style="list-style-type: none"> Wounds on lower extremities Wounds with a "perfect dressing seal" The use of lower negative pressure levels Fluid not moving from the wound into the tubing 	<ul style="list-style-type: none"> Ensure all tubing clamps are open Ensure foam dressing is completely compressed (e.g. has a "raisin" like appearance) When at a resting position, place the device to the same level or lower than the position of the wound 	<p>If the prescribing clinician permits:</p> <ul style="list-style-type: none"> Position the interface pad as distal as possible to the wound during dressing application. (This in conjunction with the device position will help fluid to drain with gravity) Use continuous therapy rather than intermittent therapy Increase the amount of negative pressure Ensure the hole cut for the interface pad is about 1 cm in size (about the size of the button on Avance® Max or Avance® Flex device) For larger wounds, consider the use of a Y connector and 2 interface pads 	<p>1- Ensure tubing clamps are open</p>  <p>2- During dressing application, place pad on distal position of wound dressing</p> 
Canister Not Engaging with Device	Canister is not seated properly in the device	<ul style="list-style-type: none"> Ensure the styrofoam pin guard is removed from the canister before securing into the device Ensure the black knob is properly rotated to secure the canister to the device 	If the canister pins are damaged, remove the canister and replace it.	<p>Remove styrofoam pin guard</p> 
Canister Tubing Breaking / Becoming Loose	High force(s) / stress on the canister tubing connector	<ul style="list-style-type: none"> Ensure the tubing is completely secure when attaching to the canister by rotating the connector into the canister 	<p>If using the Avance® Flex NPWT System, ensure the carrying bag flap is as loose as possible, to not put unwanted stress on the connector.</p> <p>If using the Avance® Max NPWT System, routing the tubing through the holder frame will help minimize stress or loosening of the tubing.</p>	<p>Push down gently and twist clockwise to lock</p> 

Appendix 6 – Wound Care Clinic

Negative Pressure Wound Therapy

Avance® Negative Pressure Wound Therapy with Hyperbaric Oxygen Therapy (HBOT)

Avance® Max NPWT Pump, Avance® Flex NPWT Pump, Avance® Foam, Avance® Film with Safetac® technology, Avance® Transparent Film, Avance® ViewPad™

If a patient is utilizing the Avance NPWT System (to include dressing) and is concurrently prescribed HBO Therapy the clinician should be directed to:

1. Ensure the Avance Max/Flex pump does not enter the HBOT Chamber. The system is not FDA cleared for use in the presence of oxygen enriched environments.
2. Disconnect the Avance Tubing from the Avance ViewPad tubing at the tubing connector
3. The clinician should use clinical judgement when considering removing the dressing or leaving it in place. The following should be considered:

Option 1:

If the duration of HBOT will exceed 2 hours following disconnecting the Avance ViewPad tubing from the Avance Tubing of the Avance Max/Flex pump, the clinician is encouraged to:

- Replace the Avance NPWT dressing with a traditional dressing type (e.g. wet to dry dressing) for the duration of the HBOT
- Following completion of HBOT treatment, resume the prescribed NPWT

Option 2:

If the duration of HBO Therapy is expected to be less than 2 hours from disconnecting the Avance ViewPad tubing from the Avance Tubing of the Avance Max/Flex pump the clinician is encouraged to select one of the 2 clinical options below:

- **Clinical Decision 1** - Leave the current Avance NPWT dressing in place. It is important to leave the Avance ViewPad tubing unclamped and open to sub-atmospheric pressure. The open end of the Avance ViewPad tubing should be wrapped in a moist towel in order to capture any exudate produced by the wound during the HBO Therapy.
- **Clinical Decision 2** - Change to a more traditional dressing type (e.g. wet to dry dressing) for the duration of the HBO Therapy. Following HBOT, apply a new NPWT dressing as prescribed and resume the prescribed NPWT therapy.

Appendix 7 – Air Travel

Commercial Air Travel with Avance® NPWT System:

Questions or concerns please call Mölnlycke Health Care at 1-800-882-4582 Option 3

Glossary

Acute

Having rapid onset of symptoms and a short course

Anticoagulant Therapy

Use of anticoagulant medication to discourage formation of blood clots within a blood vessel

Chronic

Slow progression with respect to normal linear wound healing process; may persist for a long period of time.

Comorbidity

Presence of additional conditions with the initially diagnosed illness

Debridement

Process of removing foreign debris and/or non-living tissue from a wound

Dehisced

To rupture or break open

Distal

Remote, further from any point of reference

Exudate

A fluid with a high content of protein and cellular debris

Fascia

A sheet or band of fibrous tissue such as lies deep to the skin investing muscles or supporting, binding various body organs

Friable

A condition of tissue where it readily tears, fragments or bleeds when gently palpated

Granulation

The formation in wounds of small, masses of tissue that include blood vessels and connective tissue during healing of a full thickness wound

Hammock

Also referred to as a sling wrap. To place a full or cut to shape piece of a contact layer the length of a piece of foam with additional length at the end for visualization at removal. This technique can be done with large pieces of foam such as in a Sternal Technique application to protect underlying bone or fragile structures and yet keeping the ends visible in the pocketed cavity space or with smaller strips of foam for tunnel/undermining. When covering a foam strip for placement, the contact layer is cut longer than the foam strip to create a visible tail that will lay in the main cavity for easy removal at next dressing change. The cut to fit contact layer is placed along one side of the piece of foam, around the end that will be at the inner aspect, and return along the side of the piece of foam back to the starting end, where the two tails meet. The clinician then advances this unit of foam /contact layer into the end of the tunnel/undermining and withdraws it approximately 1cm from the end to allow for tissue closure.

Hematoma

A localized collection of extravasated blood, usually clotted in an organ, body space, or tissue.

Hemostasis

Interruption of blood flow

Hydrocolloids

A gelatin/pectin composite material, occlusive, absorbs exudate to the capacity of its design

Hyperbaric Oxygen Therapy (HBOT)

Medical treatment in which oxygen is provided in a sealed chamber at an ambient pressure greater than 1 atmosphere

Laparotomy

Incision through the abdominal wall

Maceration

The softening and breaking down of skin resulting from prolonged exposure to moisture

Mediastinitis

Inflammation of the tissue of the mediastinum

Metalloproteases

A family of protein-hydrolyzing endopeptidases that contain zinc ions as part of the active structure. They have a role in normal healing but at increased levels they can delay normal wound healing process.

Necrotic

Pertaining to the death of tissue in response to disease or injury

Occlusive Dressing

A class of wound dressings that vary in permeability of gases and bacteria. This class maintains moisture in the wound

Osteomyelitis

Bone infection caused by bacteria

Oxidizing Solution

An oxidizing agent, or oxidant, gains electrons and is reduced in a chemical reaction.

Example: Hydrogen Peroxide

Pericardium

The fibrous sac enclosing the heart and the roots of the great vessels

Periwound

Tissue surrounding the immediate wound area

Picture-Frame/Window Pane

A dressing technique whereby a material is cut into shapes and applied to the immediate periwound

Purulent

A type of thick exudate that contains dead cells, can be various colors, frequently cloudy tan or yellow

Revascularization

Restoration of blood supply

Sepsis

Bacterial infection in the bloodstream or body tissues

Serosanguineous

Composed of serum and blood

Sinus Tract

Sinus tract or tunnel is a narrow opening or passageway underneath the skin that can extend in any direction through soft tissue and results in dead space.

Slough

A stringy mass that may or may not be firmly attached to surrounding tissue. Slough can range in color from white, yellow, green or brown.

Subcutaneous

Beneath the skin

Tunnel

see Sinus Tract

Tourniquet

A device for compression of an artery or vein

Undermining

Destruction of the underlying tissue surrounding the wound margins.

Reference: <http://medical-dictionary.thefreedictionary.com/>

Avance® NPWT System Clinician Resources

Mölnlycke Health Care:

Clinical /Technical Support Hotline: 1-800-882-4582 – Option 3

Corporate Office:

Mölnlycke Health Care US, LLC

5550 Peachtree Pkwy, Suite 500

Norcross, GA 30092

Non-Emergent Email Inquiries: NPWT.Support@molnlycke.com

Website: www.molnlycke.us

Mölnlycke Health Care has committed to working exclusively with Apria Healthcare® to provide Avance® Flex NPWT System for hospital to home transitions.



Apria Healthcare®

www.apria.com

APRIA HEALTHCARE®

Apria is America's leading provider of home healthcare services and equipment with more than 400 locations across the U.S.

- Rapid order NPWT processing and delivery from a local branch focused on same-day discharge
- Dedicated NPWT support team with a 24/7 customer and patient support line: [1-800-780-1228](tel:1-800-780-1228)
- Fax number for orders or clinical documentation: [1-800-323-1882](tel:1-800-323-1882)
- Email contact: NPWTSOS@apria.com
- Available via WoundExpert® and i-Heal® (for wound clinics)

Consult your local Mölnlycke representative or your local Apria Healthcare® representative if you have questions about operation or use of the Avance® NPWT System.

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