

V.A.C.[®] THERAPY

CLINICAL GUIDELINES

A REFERENCE SOURCE FOR CLINICIANS



Acelity™

Rx Only

This copy supercedes any previous revision. For revision level and contact information, refer to back cover of these guidelines.

These guidelines are not intended as a guarantee of results, outcome or performance of the V.A.C.® Therapy System. They are recommendations to help clinicians establish patient-specific treatment protocols. As with any application, please consult the patient's treating physician about individual conditions and treatment, and follow all applicable instructions for use and labeling for product use and operation.

Always consult sections of this guideline along with the applicable instructions for use, labeling and safety information sheet for the specific V.A.C.® Therapy Unit and dressing type before placing a V.A.C.® System on a patient.

For a medical emergency, contact your local emergency number (911). If you have any questions about operation or use, contact your local KCI representative. For further information, visit www.kci1.com or call 1-800-275-4524.

CAUTION: Federal (U.S.A.) law restricts these devices to sale / rental by or on the order of a physician.

Rx Only

TABLE OF CONTENTS

Introduction 5

Points to Remember When Using V.A.C.® Therapy 6

V.A.C.® Therapy Safety Information 7

Indications for Use 7

Contraindications 8

Warnings 9

Precautions 13

Additional Precautions for V.A.C. GranuFoam Silver™ Dressing 15

Considerations for Transitioning V.A.C.® Therapy Into Home Care 16

The V.A.C.® Family of Therapy Units 17

1 - V.A.C.® Therapy System 19

V.A.C.® Therapy System Pressure Settings 19

V.A.C.® Dressings, Canisters and Disposables 21

2 - V.A.C.® Dressing General Guidelines 23

Ensuring Dressing Integrity 23

Non-Adherent Dressings 23

Maintaining a Seal 24

Changing the Canister 24

Disconnecting from the V.A.C.® Therapy Unit 25

3 - Specific Dressing Techniques 27

Techniques for Treating Multiple Wounds 27

Techniques for Tunneling and Sinus Tracts 29

Undermining 30

Foot Wounds 31

Orthopedic Hardware 32

Wound Edge Reapproximation and Dressing Technique 33

Dressings and Fecal Incontinence 33

Dressing Small Wounds and SensaT.R.A.C.™ Pad Application 34

Incision Management 35

4 - V.A.C.® Therapy Monitoring 37

Pain Management 37

Length of Treatment 37

When to Discontinue V.A.C.® Therapy 37

Indicators of Effective V.A.C.® Therapy 38

Indicators of Ineffective Therapy 38

Minimal Changes in Wound Size 38

Deterioration of the Wound 39

Changes in Wound Color 40

Wound Odors 41

5 - Wound Specific Information	43
Acute / Traumatic Wounds / Partial-Thickness Burns	43
Dehisced Wounds	45
Meshed Grafts	46
Pressure Ulcers	48
Management of a Patient with a Pressure Ulcer Using V.A.C.® Therapy.....	49
Diabetic Foot Ulcers	50
Treatment of Diabetic Foot Ulcer (DFU) with V.A.C.® Therapy	51
Clinical Considerations for Diabetic Foot Ulcers	52
Venous Insufficiency Ulcers	52
Chronic Wounds	53
Flaps	54
Flap Dressing Application with V.A.C.® Therapy	55
Enteric Fistula.....	56
6 - Additional Information for V.A.C.® Therapy	61
V.A.C.® Therapy and Hyperbaric Oxygen (HBO) Therapy	61
V.A.C.® Dressings and Diagnostic Imaging	62
V.A.C.® Therapy and Magnetic Resonance Imaging (MRI)	62
Ordering the V.A.C.® Therapy System	63
Transitioning Patients Between Care Settings	64
KCI Contact Information	64
7 - V.A.C.® Therapy Unit and SensaT.R.A.C.™ System Disposables	65
V.A.C.® Therapy Essentials.....	65
Index	69

INTRODUCTION

Vacuum Assisted Closure® (V.A.C.®) Therapy is an advanced wound healing therapy that can be readily integrated into the clinician's wound healing practice, to help optimize patient care. This advanced wound healing technology is coupled with microprocessor-controlled therapy units, specialized dressings and 24 hours a day, 7 days a week technical support.

The V.A.C.® Therapy platform includes a collection of products: ActiV.A.C.®, InfoV.A.C.®, V.A.C. ATS®, V.A.C. Freedom®, V.A.C. Simplicity™, V.A.C.Ulta™ and V.A.C.Via™ Negative Pressure Wound Therapy Systems. These integrated wound management systems are designed to deliver negative pressure (a vacuum) to promote wound healing by preparing the wound bed for closure, reducing edema, promoting granulation tissue formation and perfusion and by removing exudate and infectious materials.

The components of the V.A.C.® Therapy System work as an integrated product to optimize both the delivery and the benefits of negative pressure wound therapy. An open pore reticulated polyurethane foam (V.A.C.® GranuFoam™ Dressing, V.A.C. GranuFoam Silver™ Dressing), or polyvinyl alcohol foam (V.A.C.® WhiteFoam Dressing) is cut to fit the wound, then covered with an adhesive drape. The open cells of the foam enable equal distribution of the negative pressure across the surface of the wound, while tubing transfers accumulated fluids to the V.A.C.® Canister. The software-controlled therapy unit applies negative pressure to the wound bed. The user can select continuous or intermittent / Dynamic Pressure Control (DPC) therapy on the therapy unit, depending upon wound type and the needs of each patient. SensaT.R.A.C.™ (Therapeutic Regulated Accurate Care) technology delivers, monitors and helps to maintain target pressure and relays signals to the therapy unit. The safety features of the V.A.C.® Therapy System include alarms that signal tubing blockages, a full or missing canister, inactive therapy, low battery, leaks in the seal of the dressing and a low pressure alarm in the ActiV.A.C.®, InfoV.A.C.® and V.A.C.Ulta™ Therapy System models.

These guidelines do not address application procedures or clinical considerations specific to KCI's V.A.C.Ultra™ Therapy System when using V.A.C. VeraFlo™ Therapy mode (instillation of topical solutions). Contact your KCI Representative and consult product specific instructions for use and labeling for guidance on use with application of V.A.C. VeraFlo™ Therapy.

These guidelines do not address application procedures or clinical considerations specific to KCI's Negative Pressure Therapy (NPT) device for management of the open abdomen (the ABThera™ Active Abdominal Therapy System). Contact your KCI Representative and consult product specific instructions for use and labeling for guidance.

POINTS TO REMEMBER WHEN USING V.A.C.® THERAPY

- Ensure that the patient / wound is a suitable candidate for V.A.C.® Therapy.
- Read and follow all user instructions and safety information that accompany KCI products.
- Ensure accuracy of diagnosis and address all underlying and associated co-morbidities.
- Ensure appropriate V.A.C.® Dressing selection and suitable indication-specific V.A.C.® Dressings are used.
- Do not place V.A.C.® GranuFoam™ Dressings or V.A.C.® WhiteFoam Dressings directly over exposed organs, blood vessels, anastomotic sites and / or nerves.
- Ensure appropriate debridement prior to treatment.
- Do not tightly pack V.A.C.® Dressings into the wound; place dressings gently into the wound.
- Ensure a good drape seal has been achieved. The ActiV.A.C.®, InfoV.A.C.® and V.A.C.Ultra™ Therapy Systems offer a Seal Check™ Leak Detector that provides assistance in identifying leaks.
- Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.
- Keep V.A.C.® Therapy on for at least 22 hours in a 24 hour period. Do not leave the V.A.C.® Dressing in place if the therapy unit is switched off for more than two hours in 24.
- Monitor continuously and check and respond to alarms.
- When dressing is removed, count the number of foam pieces removed, correlate the count with the number of pieces previously placed in the wound and verify the complete removal of all V.A.C.® Foam dressing pieces.
- If no response or improvement in the wound is observed within two weeks, reassess the treatment plan.
- Seek advice / support from local KCI representative as needed.
- **Follow Standard Precautions.**

V.A.C.® THERAPY SAFETY INFORMATION

Disposable components of the V.A.C.® Therapy System are provided as indicated on the associated product labeling. V.A.C.® Therapy Unit canisters are packaged sterile or fluid path sterile and are latex-free. All disposable components of the V.A.C.® Therapy System are for single use only. To help ensure safe and effective use, the V.A.C.® GranuFoam™ Dressing, V.A.C. GranuFoam Silver™ Dressing and V.A.C.® WhiteFoam Dressings are to be used only with V.A.C.® Therapy Units.

Re-use of disposable components may result in wound contamination, infection and / or failure of the wound to heal.

The decision to use clean versus sterile / aseptic technique is dependent upon wound pathophysiology, physician / clinician preference, and institutional protocol.

IMPORTANT: As with any prescription medical device, failure to consult a physician and carefully read and follow all therapy unit and dressing instructions and safety information prior to each use may lead to improper product performance and the potential for serious or fatal injury. Do not adjust therapy unit settings or perform therapy application without directions from / or supervision by the treating physician.

INDICATIONS FOR USE

The ActiV.A.C.®, InfoV.A.C.®, V.A.C. ATS® and V.A.C. Freedom®, V.A.C. Simplicity™ and V.A.C. Via™ Negative Pressure Wound Therapy Systems are integrated wound management systems for use in acute, extended and home care settings.

When used on open wounds, they are intended to create an environment that promotes wound healing by secondary or tertiary (delayed primary) intention by preparing the wound bed for closure, reducing edema, promoting granulation tissue formation and perfusion and by removing exudate and infectious material. Open wound types include: chronic, acute, traumatic, subacute and dehisced wounds, partial-thickness burns, ulcers (such as diabetic, pressure or venous insufficiency), flaps and grafts.

The V.A.C. GranuFoam Silver™ Dressing is an effective barrier to bacterial penetration and may help reduce infection in the above wound types.

When used on closed surgical incisions, they are intended to manage the environment of surgical incisions that continue to drain following sutured or stapled closure by maintaining a closed environment and removing exudates via the application of negative pressure wound therapy.

CONTRAINDICATIONS

- Do not place foam dressings of the V.A.C.® Therapy System directly in contact with exposed blood vessels, anastomotic sites, organs or nerves.

NOTE: Refer to *Warnings* section for additional information concerning *Bleeding*.

- V.A.C.® Therapy is contraindicated for patients with:

- Malignancy in the wound
- Untreated osteomyelitis

NOTE: Refer to **Warnings** section for **Osteomyelitis** information.

- Non-enteric and unexplored fistulas
- Necrotic tissue with eschar present

NOTE: After debridement of necrotic tissue and complete removal of eschar, V.A.C.® Therapy may be used.

- Sensitivity to silver (V.A.C. GranuFoam Silver™ Dressing only)

WARNINGS

Bleeding: With or without using V.A.C.® Therapy, certain patients are at high risk of bleeding complications. The following types of patients are at increased risk of bleeding, which, if uncontrolled, could be potentially fatal:

- Patients who have weakened or friable blood vessels or organs in or around the wound as a result of, but not limited to:
 - Suturing of the blood vessel (native anastomoses or grafts) / organ
 - Infection
 - Trauma
 - Radiation
- Patients without adequate wound hemostasis
- Patients who have been administered anticoagulants or platelet aggregation inhibitors
- Patients who do not have adequate tissue coverage over vascular structures

If V.A.C.® Therapy is prescribed for patients who have an increased risk of bleeding complications, they should be treated and monitored in a care setting deemed appropriate by the treating physician.

If active bleeding develops suddenly or in large amounts during V.A.C.® Therapy, or if frank (bright red) blood is seen in the tubing or in the canister, immediately stop V.A.C.® Therapy, leave dressing in place, take measures to stop the bleeding and seek immediate medical assistance. The V.A.C.® Therapy Units and dressings should not be used to prevent, minimize or stop vascular bleeding.

- **Protect Vessels and Organs:** All exposed or superficial vessels and organs in or around the wound must be completely covered and protected prior to the administration of V.A.C.® Therapy.

Always ensure that V.A.C.® Foam Dressings do not come in direct contact with vessels or organs. Use of a thick layer of natural tissue should provide the most effective protection. If a thick layer of natural tissue is not available or is not surgically possible, multiple layers of non-adherent dressing (page 23) material may be considered as an alternative, if deemed by the treating physician to provide a complete protective barrier. If using non-adherent materials (page 23), ensure they are secured in a manner that will maintain their protective position throughout therapy.

Consideration should also be given to the negative pressure setting and therapy mode used when initiating therapy.

Caution should be taken when treating large wounds that may contain hidden vessels which may not be readily apparent. The patient should be closely monitored for bleeding in a care setting deemed appropriate by the treating physician.

- **Infected Blood Vessels:** Infection may erode blood vessels and weaken the vascular wall which may increase susceptibility to vessel damage through abrasion or manipulation. **Infected blood vessels are at risk of complications, including bleeding, which, if uncontrolled, could be potentially fatal. Extreme caution should be used when V.A.C.® Therapy is applied in close proximity to infected or potentially infected blood vessels.** (Refer to **Protect Vessels and Organs** section above). The patient should be closely monitored for bleeding in a care setting deemed appropriate by the treating physician.
- **Hemostasis, Anticoagulants and Platelet Aggregation Inhibitors:** Patients without adequate wound hemostasis have an increased risk of bleeding, which, if uncontrolled, could be potentially fatal. These patients should be treated and monitored in a care setting deemed appropriate by the treating physician.

Caution should be used in treating patients on doses of anticoagulants or platelet aggregation inhibitors thought to increase their risk for bleeding (relative to the type and complexity of the wound). Consideration should be given to the negative pressure setting and therapy mode used when initiating therapy.

- **Hemostatic Agents Applied at the Wound Site:** Non-sutured hemostatic agents (for example, bone wax, absorbable gelatin sponge or spray wound sealant) may, if disrupted, increase the risk of bleeding, which, if uncontrolled, could be potentially fatal. Protect against dislodging such agents. Consideration should be given to the negative pressure setting and therapy mode used when initiating therapy.
- **Sharp Edges:** Bone fragments or sharp edges could puncture protective barriers, vessels or organs, causing injury. Any injury could cause bleeding, which, if uncontrolled, could be potentially fatal. Beware of possible shifting in the relative position of tissues, vessels or organs within the wound that might increase the possibility of contact with sharp edges. Sharp edges or bone fragments must be covered or eliminated from the wound area, to prevent them from puncturing blood vessels or organs before the application of V.A.C.® Therapy. Where possible, completely smooth and cover any residual edges to decrease the risk of serious or fatal injury, should shifting of structures occur. Use caution when removing dressing components from the wound so that wound tissue is not damaged by unprotected sharp edges.

1000 mL Canister: DO NOT USE the 1000 mL canister on patients with a high risk of bleeding or on patients unable to tolerate a large loss of fluid volume, including children and the elderly. Consider the size and weight of the patient, patient condition, wound type, monitoring capability and care setting when using this canister. This canister is recommended for acute care (hospital) use only.

Infected Wounds: Infected wounds should be monitored closely and may require more frequent dressing changes than non-infected wounds, dependent upon factors such as wound conditions and treatment goals. Refer to dressing application instructions (found in V.A.C.® Dressing cartons) for details regarding dressing change frequency. As with any wound treatment, clinicians and patients / caregivers should frequently monitor the patient's wound, periwound tissue and exudate for signs of infection, worsening infection or other complications. Some signs of infection are fever, tenderness, redness, swelling, itching, rash, increased warmth in the wound or periwound area, purulent discharge or strong odor. Infection can be serious, and can lead to complications such as pain, discomfort, fever, gangrene, toxic shock, septic shock and / or fatal injury. Some signs or complications of systemic infection are nausea, vomiting, diarrhea, headache, dizziness, fainting, sore throat with swelling of the mucus membranes, disorientation, high fever, refractory and / or orthostatic hypotension or erythroderma (a sunburn-like rash). **If there are any signs of the onset of systemic infection or advancing infection at the wound site, contact the treating physician immediately to determine if V.A.C.® Therapy should be discontinued.** For wound infections relating to blood vessels, please also refer to the section titled **Infected Blood Vessels**.

Infected Wounds with V.A.C. GranuFoam Silver™ Dressing: In the event of clinical infection, V.A.C. GranuFoam Silver™ Dressing is not intended to replace the use of systemic therapy or other infection treatment regimens. V.A.C. GranuFoam Silver™ Dressing may be used to provide a barrier to bacterial penetration.

Osteomyelitis: V.A.C.® Therapy should NOT be initiated on a wound with untreated osteomyelitis. Consideration should be given to thorough debridement of all necrotic, non-viable tissue, including infected bone (if necessary), and appropriate antibiotic therapy. Protect intact bone with a single layer of non-adherent material (page 23).

Protect Tendons, Ligaments and Nerves: Tendons, ligaments and nerves should be protected to avoid direct contact with V.A.C.® Foam Dressings. These structures may be covered with natural tissue, non-adherent material (page 23) to help minimize risk of desiccation or injury.

Foam Placement: Always use V.A.C.® Dressings from sterile packages that have not been opened or damaged. Do not place any foam dressing into blind / unexplored tunnels. The V.A.C.® WhiteFoam Dressing may be more appropriate for use with explored tunnels. Do not force foam dressings into any area of the wound, as this may damage tissue, alter the delivery of negative pressure or hinder exudate and foam removal. Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or foam quantity label if available, and in the patient's chart.

V.A.C.® Foam Dressings are radiolucent, not detectable on X-Ray.

Foam Removal: V.A.C.® Foam Dressings are not bioabsorbable. **Always count the total number of pieces of foam removed from the wound and ensure the same number of foam pieces are removed as were placed.** Foam left in the wound for greater than the recommended time period may foster ingrowth of tissue into the foam, create difficulty in removing foam from the wound or lead to infection or other adverse events. If dressing adheres to wound consider introducing sterile water or normal saline into the dressing, waiting 15 - 30 minutes, then gently removing the dressing from the wound. Regardless of treatment modality, disruption of the new granulation tissue during any dressing change may result in bleeding at the wound site. Minor bleeding may be observed and considered expected. However, patients with increased risk of bleeding, as described on page 9, have a potential for more serious bleeding from the wound site. As a precautionary step, consider using V.A.C.® WhiteFoam or non-adherent material (page 23) underneath the V.A.C.® GranuFoam™ Dressing to help minimize the potential for bleeding at dressing removal in these patients. **If significant bleeding develops, immediately discontinue the use of the V.A.C.® Therapy System, take measures to stop the bleeding and do not remove the foam dressing until the treating physician or surgeon is consulted. Do not resume the use of the V.A.C.® Therapy System until adequate hemostasis has been achieved, and the patient is not at risk for continued bleeding.**

Keep V.A.C.® Therapy On: Never leave a V.A.C.® Dressing in place without active V.A.C.® Therapy for more than two hours. If therapy is off for more than two hours, remove the old dressing and irrigate the wound. Either apply a new V.A.C.® Dressing from an unopened sterile package and restart V.A.C.® Therapy, or apply an alternative dressing at the direction of the treating physician.

Acrylic Adhesive: The V.A.C.® Drape has an acrylic adhesive coating, which may present a risk of an adverse reaction in patients who are allergic or hypersensitive to acrylic adhesives. If a patient has a known allergy or hypersensitivity to such adhesives, do not use the V.A.C.® Therapy System. If any signs of allergic reaction or hypersensitivity develop, such as redness, swelling, rash, urticaria or significant pruritus, discontinue use and consult a physician immediately. If bronchospasm or more serious signs of allergic reaction appear, seek immediate medical assistance.

Defibrillation: Remove the V.A.C.® Dressing if defibrillation is required in the area of dressing placement. Failure to remove the dressing may inhibit transmission of electrical energy and / or patient resuscitation.

Magnetic Resonance Imaging (MRI) - V.A.C.® Therapy Unit: The V.A.C.® Therapy Unit is **MR unsafe**. Do not take the V.A.C.® Therapy Unit into the MR environment.

Magnetic Resonance Imaging (MRI) - V.A.C.® Dressings: V.A.C.® Dressings can typically remain on the patient with minimal risk in an MR environment, assuming that use of the V.A.C.® Therapy System is not interrupted for more than two hours (refer to **Keep V.A.C.® Therapy On** section). The V.A.C. GranuFoam Silver™ Dressing has been shown to pose no known hazards in an MR environment with the following conditions of use:

- Static magnetic field of 3 Tesla or less,
- Spatial gradient field of 720 Gauss / cm or less and
- Maximum whole-body-averaged specific absorption rate (SAR) of 3 W / kg for 15 minutes of scanning.

Non-clinical testing under these same conditions produced a temperature rise of <0.4°C. MR image quality may be compromised if the area of interest is in the same area or relatively close to the position of the V.A.C. GranuFoam Silver™ Dressing.

Hyperbaric Oxygen Therapy (HBO): Do not take the V.A.C.® Therapy Unit into a hyperbaric oxygen chamber. The V.A.C.® Therapy Unit is not designed for this environment, and **should be considered a fire hazard**. After disconnecting the V.A.C.® Therapy Unit, either (i) replace the V.A.C.® Dressing with another HBO compatible material during the hyperbaric treatment, or (ii) cover the unclamped end of the V.A.C.® Tubing with dry gauze. For HBO therapy, the V.A.C.® Tubing must not be clamped. Never leave a V.A.C.® Dressing in place without active V.A.C.® Therapy for more than two hours (refer to **Keep V.A.C.® Therapy On** section).

NOTE: *The V.A.C.® GranuFoam™ Bridge Dressing contains additional synthetic materials which may pose a risk during HBO Therapy.*

PRECAUTIONS

Standard Precautions: To reduce the risk of transmission of bloodborne pathogens, apply standard precautions for infection control with all patients, per institutional protocol, regardless of their diagnosis or presumed infection status. In addition to gloves, use gown and goggles if exposure to body fluids is likely.

Closed Surgical Incisions: For maximum benefit the V.A.C.® Therapy System should be applied immediately post surgery to clean surgically closed wounds. It is to be continuously applied for a minimum of two days up to a maximum of seven days. The ActiV.A.C.®, InfoV.A.C.®, V.A.C. ATS®, V.A.C. Simplicity™, V.A.C. Via™ and V.A.C. Freedom® Therapy Systems can transition home with the patient; however, all dressing changes should be performed under direct medical supervision.

The V.A.C.® Therapy System will not be effective in addressing complications associated with the following:

- Ischemia to the incision or incision area
- Untreated or inadequately treated infection
- Inadequate hemostasis of the incision
- Cellulitis of the incision area

Continuous versus Intermittent / DPC V.A.C.® Therapy: Continuous, rather than intermittent / DPC, V.A.C.® Therapy is recommended over unstable structures, such as an unstable chest wall or non-intact fascia, in order to help minimize movement and stabilize the wound bed. Continuous therapy is also generally recommended for patients at increased risk of bleeding, highly exuding wounds, fresh flaps and grafts and wounds with acute enteric fistulae.

Patient Size and Weight: The size and weight of the patient should be considered when prescribing V.A.C.® Therapy. Infants, children, certain small adults and elderly patients should be closely monitored for fluid loss and dehydration. Also, patients with highly exuding wounds or large wounds in relation to the patient size and weight should be closely monitored, as these patients have a risk of excessive fluid loss and dehydration. When monitoring fluid output, consider the volume of fluid in both the tubing and canister.

Spinal Cord Injury: In the event a patient experiences autonomic dysreflexia (sudden changes in blood pressure or heart rate in response to stimulation of the sympathetic nervous system), discontinue V.A.C.® Therapy to help minimize sensory stimulation and seek immediate medical assistance.

Bradycardia: To minimize the risk of bradycardia, V.A.C.® Therapy must not be placed in proximity to the vagus nerve.

Enteric Fistulas: Wounds with enteric fistulas require special precautions to optimize V.A.C.® Therapy. V.A.C.® Therapy is not recommended if enteric fistula effluent management or containment is the sole goal of therapy.

Protect Periwound Skin: Consider use of a skin preparation product to protect periwound skin. Do not allow foam to overlap onto intact skin. Protect fragile / friable periwound skin with additional V.A.C.® Drape, hydrocolloid or other transparent film.

- Multiple layers of the V.A.C.® Drape may decrease the moisture vapor transmission rate, which may increase the risk of maceration.
- If any signs of **irritation or sensitivity** to the drape, foam or tubing assembly appear, discontinue use and consult a physician.
- To avoid trauma to the periwound skin, **do not pull or stretch the drape** over the foam dressing during drape application.
- Extra caution should be used for patients with neuropathic etiologies or circulatory compromise.

Circumferential Dressing Application: Avoid use of circumferential dressings except in the presence of anasarca or excessively weeping extremities, where a circumferential drape technique may be necessary to establish and maintain a seal. Consider using multiple small pieces of V.A.C.® Drape rather than one continuous piece to minimize the risk of decreased distal circulation. Extreme care should be taken not to stretch or pull the drape when securing it, but let it attach loosely and stabilize the edges with an elastic wrap, if necessary. When using circumferential drape applications, it is crucial to systematically and recurrently palpate distal pulses and assess distal circulatory status. If circulatory compromise is suspected, discontinue therapy, remove dressing and contact a treating physician.

V.A.C.® Therapy Unit Pressure Excursions: In rare instances, tubing blockages with the V.A.C.® Therapy Unit may result in brief vacuum excursions to more than 250 mmHg negative pressure. Resolve alarm conditions immediately. Refer to the therapy unit user's guide or contact your KCI representative for additional information.

ADDITIONAL PRECAUTIONS FOR V.A.C. GRANUFOAM SILVER™ DRESSING

Topical Solutions or Agents: When using the V.A.C. GranuFoam Silver™ Dressing, do not use topical solutions or agents that may have adverse interactions with silver. For example, saline solutions may compromise the effectiveness of the V.A.C. GranuFoam Silver™ Dressing.

Protective Layer: For maximum effectiveness, the V.A.C. GranuFoam Silver™ Dressing should be applied directly to the wound surface to enhance optimal contact of the tissue with the foam / silver interface. However, as with all V.A.C.® Foam Dressings, the V.A.C. GranuFoam Silver™ Dressing should not be placed in direct contact with exposed blood vessels, anastomotic sites, organs or nerves (refer to section on **Protect Vessels and Organs**). Intervening non-adherent layers (page 23) may be placed between the V.A.C. GranuFoam Silver™ Dressing and the wound surface; however, these products may compromise the effectiveness of the V.A.C. GranuFoam Silver™ Dressing in the area covered by the non-adherent layer.

Electrodes or Conductive Gel: Do not allow the V.A.C. GranuFoam Silver™ Dressing to come in contact with EKG or other electrodes or conductive gels during electronic monitoring or when taking electronic measurements.

Diagnostic Imaging: The V.A.C. GranuFoam Silver™ Dressing contains metallic silver that may impair visualization with certain imaging modalities.

Dressing Components: The V.A.C. GranuFoam Silver™ Dressing contains elemental silver (10%) as a sustained release formulation. Application of products containing silver may cause temporary tissue discoloration.

In addition to these general warnings and precautions for V.A.C.® Therapy, additional warnings and precautions apply to certain V.A.C.® specialty dressings and V.A.C.® Therapy Units. Please refer to the specific product instructions for use and labeling prior to application.

CONSIDERATIONS FOR TRANSITIONING V.A.C.® THERAPY INTO HOME CARE

WARNING: Patients with an increased risk of bleeding complications should be treated and monitored in a care setting deemed appropriate by the treating physician.

In addition to the contraindications, warnings and precautions for use of V.A.C.® Therapy, consider the following before prescribing V.A.C.® Therapy for use in the home care setting.

- **The Patient's Situation:**

- Clinical condition (adequate hemostasis and a low risk of active and / or large amounts of bleeding at the wound site)
- Home environment (patient or family member / caregiver able to read and understand safety labeling, able to respond to alarms, able to follow instructions for use)

- **The Patient's Wound:**

- Assess for exposed vessels, anastomotic sites, organs and nerves. Adequate protection should be present (refer to **Protect Vessels and Organs in the Warnings** section).

- **The V.A.C.® Therapy System Canister Size:**

- The 1000 mL canister is NOT intended for use in the home.

- **Labeling:**

- The prescribing physician and health care clinician should be familiar with the V.A.C.® Therapy instructional materials that accompany the therapy unit and dressing cartons into the home.
- An information folder is provided with the therapy unit. The prescribing physician and / or healthcare clinician should carefully review these materials with the patient and patient's caregiver.
- KCI offers in-service and training programs for use of V.A.C.® Therapy. Contact your local KCI representative. In the U.S., call 1-800-275-4524 for scheduling.

If there are any questions regarding the proper placement or usage of V.A.C.® Therapy, please refer to these V.A.C.® Therapy Clinical Guidelines for more detailed instructions or contact your local KCI Representative. For additional and most current information, please see KCI's website at www.kci1.com.

THE V.A.C.[®] FAMILY OF THERAPY UNITS

These V.A.C.[®] Therapy Clinical Guidelines are for use with V.A.C.[®] Therapy Systems. However, not all therapy units have the same features or require the same guidelines. All V.A.C.[®] Therapy Systems use the SensaT.R.A.C.[™] Pad. Please refer to the specific product's user manual and / or quick reference guide for operating instructions.

ActiV.A.C.[®] Therapy System



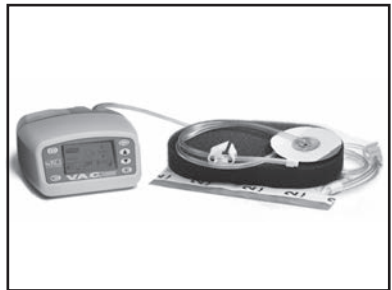
InfoV.A.C.[®] Therapy System



V.A.C. ATS[®] Therapy System



V.A.C. Freedom[®] Therapy System



V.A.C. Simplicity[™] Therapy System



**V.A.C.Ultra™ Therapy System
(V.A.C.® Therapy Mode Only)**



V.A.C.Via™ Therapy System



Certain unique indications, contraindications, warnings and precautions may apply to individual products within the V.A.C.® family of devices. Please refer to each product's labeling and instructional materials for further information.

1 - V.A.C.® THERAPY SYSTEM

V.A.C.® THERAPY SYSTEM PRESSURE SETTINGS

The therapy settings in these guidelines are general recommendations. You may wish to vary the pressure settings to optimize V.A.C.® Therapy based on individual patient need, physician order or an expert clinician's guidance.

Adjusting the pressure settings

For recommended pressure settings for specific wound types, refer to the wound-specific recommendation section (pages 43 - 60).

The default setting for V.A.C.® Therapy is 125 mmHg on a continuous setting, but these settings may be individualized to the patient's needs.

Consider titrating the V.A.C.® Therapy pressure setting up by 25 mmHg increments for the following conditions:

- Excessive drainage
- Large wound volume
- V.A.C.® WhiteFoam Dressing(s) in the wound or in tunneled areas
- A tenuous seal (refer to **Maintaining a Seal**, page 24)

The V.A.C.® Therapy pressure setting may be titrated down by 25 mmHg increments for the following situations:

- Extremes of age
- Compromised nutrition
- Risk of excessive bleeding (e.g., patients on anticoagulation therapy)
- Circulatory compromise (e.g., peripheral vascular disease)
- Excessive granulation tissue growth
- Pain or discomfort not relieved by appropriate analgesia
- Periwound or wound bed ecchymosis

Continuous therapy versus intermittent / DPC therapy

Continuous therapy is recommended for the first 48 hours in all wounds. Intermittent / DPC therapy may be used following this 48 hour period. Some patients may be better served on continuous therapy for the duration of the treatment. Continuous therapy after the first 48 hours is recommended when:

- Patients are at increased risk of bleeding
- Patients experience significant discomfort during intermittent / DPC therapy
- It is difficult to maintain an airtight seal (e.g., perianal or toe wounds)
- There are tunnels or undermined areas, as continuous therapy helps to hold the wound closed, collapsing the edges and promoting granulation (see the tunneling technique, page 29)
- There are high levels of drainage from the wound after the first 48 hours (it is better to wait until the amount of drainage tapers off before switching to intermittent / DPC mode)
- There are grafts or flaps with the need to prevent shear
- A splinting effect is required (e.g., sternal or abdominal wounds)

Table 1.1: Recommended therapy settings

Wound Characteristics	Continuous	Intermittent / DPC
Difficult dressing application	•	
Flaps	•	
Highly exudating	•	
Grafts	•	
Painful wounds	•	
Tunnels or undermining	•	
Unstable structures	•	
Minimally exudating	•	•
Large wounds	•	•
Small wounds	•	•
Stalled progress	•	•

Intensity feature

Intensity relates to how quickly target pressure is reached after the initiation of each therapy cycle. The lower the intensity setting, the longer it will take to reach the target pressure. It is recommended that patients new to therapy begin at the lowest intensity setting as this allows for a slower, gentler increase of negative pressure and resultant compression of the foam in the wound. The intensity can remain at the minimum setting throughout treatment to enhance patient comfort, especially when using intermittent / DPC therapy. Higher intensity settings are recommended for larger wounds to obtain / maintain seal.

V.A.C.® DRESSINGS, CANISTERS AND DISPOSABLES

A number of V.A.C.® Dressings and accessories are available for use with V.A.C.® Therapy Units. These include canisters, tubing, drape, foam dressings and the SensaT.R.A.C.™ Pad. In addition, specialty V.A.C.® Dressings are also available (refer to page 27, **Specific Dressing Techniques** and page 65, **V.A.C.® Therapy Essentials**). Visit the KCI website www.kci1.com for additional and most current information.

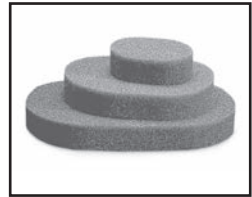


KCI provides three types of foam for use with the V.A.C.® Therapy System.

V.A.C.® GranuFoam™ Dressing: This black polyurethane (PU) foam dressing has reticulated (open) pores to help evenly distribute negative pressure across the wound bed, assisting in tissue granulation formation in wounds and aiding wound contraction. It is hydrophobic (moisture repelling), which enhances exudate removal.



V.A.C. GranuFoam Silver™ Dressing: The V.A.C. GranuFoam Silver™ Dressing is an open-celled, reticulated polyurethane foam that has been microbonded with metallic silver via a proprietary metallization process. The microbonded metallic silver is uniformly distributed throughout the dressing, providing silver even after sizing.



V.A.C.® WhiteFoam Dressing: This white polyvinyl alcohol foam is a dense, open-pore foam with a higher tensile strength than the V.A.C.® GranuFoam™ Dressing for use in tunnels and undermining. It is hydrophilic (or moisture retaining) and is packaged pre-moistened with sterile water. Its characteristics help to reduce the likelihood of adherence to the wound base. V.A.C.® WhiteFoam Dressing may be used to assist in minimizing discomfort, over fresh split thickness skin grafts (STSG) or in situations where hypergranulation responses are likely. The higher density of V.A.C.® WhiteFoam Dressing requires a minimum pressure setting of 125mmHg.



For optimal pressure distribution, it is recommended to use a V.A.C.® GranuFoam™ Dressing over V.A.C.® WhiteFoam. Do not place foam dressings of the V.A.C.® Therapy System directly in contact with exposed blood vessels, anastomotic sites, organs or nerves.

Table 1.2: Selecting an appropriate foam dressing

Wound Characteristics	V.A.C.® GranuFoam™ Dressing	V.A.C.® WhiteFoam Dressing	V.A.C. GranuFoam Silver™	V.A.C.® GranuFoam™ Bridge / Bridge XG Dressing
Deep, acute wounds with moderate granulation tissue present	●		●	
Full-thickness pressure ulcers (Stage 3 or 4)	●		●	●
Flaps	●		●	
Painful wounds		●		
Superficial wounds		●		
Tunneling / sinus tracts / undermining		●		
Wounds that require controlled growth of granulation tissue		●		
Deep trauma wounds	●	●	●	
Diabetic foot ulcers	●	●	●	●
Dry wounds	●	●	●	
Post-graft placement (including dermal substitutes)	●*	●	●	
Lower extremity ulcers, including Venous Leg Ulcers and Diabetic Foot Ulcers	●	●	●	●
Venous Insufficiency Ulcers	●	●	●	●
Need for barrier to bacterial penetration			●	
Closed Surgical Incisions	●*			

* The V.A.C.® GranuFoam™ Dressing can be used over grafts and closed surgical incisions only when there is a non-adherent dressing (page 23) placed directly over the graft or incision.

NOTE: *These are general recommendations. Consult treating physician as individual patient circumstances may vary.*

Please refer to the specific instructions for use provided with the dressing for complete dressing application instructions.

2 - V.A.C.® DRESSING GENERAL GUIDELINES

ENSURING DRESSING INTEGRITY

It is recommended that a clinician or patient (in the home) visually check the dressing every two hours to ensure that the foam is firm and collapsed in the wound bed while therapy is active, if not:

- Make sure the display screen reads THERAPY ON. If not, press the THERAPY ON / OFF button.
- Confirm the clamps are open and the tubing is not kinked.
- Identify air leaks by listening with a stethoscope or moving your hand around the edges of the dressing while applying light pressure.
- If you find that the seal is broken and the V.A.C.® Drape has become loose, trim away any loose or moist edges, ensure the skin is dry and then apply new drape strips.

NOTE: *If a leak source is identified, patch with additional drape to ensure seal integrity.*

CAUTION: Use as few layers of drape as possible. Multiple layers of the V.A.C.® Drape may decrease the moisture vapor transmission rate, which may increase the risk of maceration, especially in small wounds, lower extremities or load-bearing areas.

NOTE: *If the wound is over a bony prominence or in an area where weight bearing may exert additional pressure or stress to the underlying tissues, a pressure-relief surface or device should be used to optimize patient off-loading.*

NOTE: *Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.*

NON-ADHERENT DRESSINGS

In some situations, a non-adherent dressing may be placed over the wound before the V.A.C.® Foam Dressing is applied. Examples of meshed non-adherent materials that may be used with KCI dressings include, but are not limited to:

- Petroleum impregnated dressings
- Oil emulsion impregnated dressings
- Silicone dressings

MAINTAINING A SEAL

Maintaining a seal around the dressing is key to successful V.A.C.[®] Therapy. Recommendations to maintain the integrity of the seal:

- Dry the periwound area thoroughly after cleansing. A protective skin barrier preparation may be used to prepare the skin for drape application (e.g., a liquid barrier film or surgical adhesive).
- For delicate periwound tissue or in areas that are difficult to dress, apply protective skin preparation and frame the wound with transparent film or a hydrocolloid dressing or other appropriate barrier.
- Ensure V.A.C.[®] GranuFoam™ Dressing is appropriate for the depth of the wound by either cutting or beveling it, or use specific thinner V.A.C.[®] GranuFoam™ Dressings where indicated.
- Position the dressing tubing on flat surfaces and away from the perineal area, bony prominences or pressure areas.
- Secure or anchor the tubing with an additional piece of drape or tape, positioning the anchor several centimeters away from the dressing or wound. This prevents tension on the tubing from pulling on the dressing. If secured directly to the dressing, tension on the tubing may interrupt the dressing seal.

CHANGING THE CANISTER

The V.A.C.[®] Canister should be changed when full (the alarm will sound) or at least once a week to control odor:

1. Follow standard precautions as the system may contain body fluids.
2. Close the clamps on both the canister and dressing tubing.
3. Disconnect the canister tubing from the dressing tubing.
4. Remove the canister from the unit.
5. Dispose of the canister according to specified institution protocol or state and local regulations.
6. Install a new canister as described in therapy unit's labeling and instructional materials.
7. Connect the new canister to the dressing tubing and initiate therapy as ordered.

DISCONNECTING FROM THE V.A.C.® THERAPY UNIT

WARNING: Never leave a V.A.C.® Dressing in place without active V.A.C.® Therapy for more than two hours. If therapy is off for more than two hours, remove the old dressing and irrigate the wound. Either apply a new V.A.C.® Dressing from an unopened sterile package and restart V.A.C.® Therapy; or apply an alternative dressing, such as wet to moist gauze, as approved during times of extreme need, by treating clinician.

To disconnect for short periods of time:

1. Close the clamps on the canister and dressing tubing.
2. Turn the therapy unit off.
3. Disconnect the dressing tubing from the canister tubing.
4. Cover the ends of the tubing and secure. Use canister tubing cap if available.

To re-connect:

1. Remove tubing cap or protective covering from the end of the tubing.
2. Reconnect the dressing tubing and the canister tubing.
3. Open both clamps.
4. Turn the therapy unit on. Confirm that previous therapy settings resume.

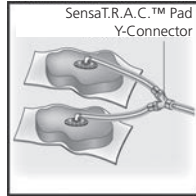
3 - SPECIFIC DRESSING TECHNIQUES

TECHNIQUES FOR TREATING MULTIPLE WOUNDS

Y-connector Technique

By applying a Y-connector to the canister tubing, one V.A.C.® Therapy Unit may be used to simultaneously treat multiple wounds on the same patient. If this technique is used, all dressed wound sites must be assessed for seal integrity. The dressing should be collapsed.

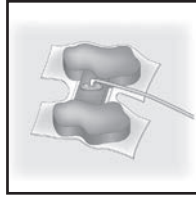
V.A.C.® GranuFoam™ Dressings and V.A.C. GranuFoam Silver™ Dressings should have a wrinkled appearance. There should be no hissing sounds.



- SensaT.R.A.C.™ Technology only senses one wound site, the side with the post (male port), even when multiple sites are being treated.
- It is not recommended to Y-connect grafts and / or flaps.
- It is not recommended to use more than one Y-connector per therapy unit.
- Do not connect infected wounds with non-infected wounds through a Y-connector.
- Do not connect wounds with different etiologies in which cross contamination may occur.
- Avoid using a Y-connector to connect wounds that would be optimally treated with differing pressure settings.
- Consider the Y-connector as an extension of canister tubing.

Change the Y-connector at least once a week or more frequently, as needed, when the canister is changed. Dispose of the Y-connector, the canister tubing and the canister in accordance with specific institution protocols or state and local regulations.

Bridging Technique



Wounds that are in close proximity to one another on the same patient and of similar pathologies may also be treated with one V.A.C.® Therapy Unit using a technique known as bridging.

The advantages of bridging include:

- The ability to join two or more wounds of like origin with one V.A.C.® Therapy Unit.
- Allowing placement of the SensaT.R.A.C.™ Pad and tubing in an appropriate location based on wound size, wound type and wound location.

NOTE: Use only V.A.C.® GranuFoam™ Dressings to bridge.

Step-by-step Bridging Guidelines

1. Protect intact skin between the two wounds with a piece of V.A.C.® Drape or other skin barrier such as a hydrocolloid dressing or a vapor-permeable adhesive film dressing.
2. Place foam dressing in both wounds, then connect the two wounds with an additional piece of foam, forming a bridge. All foam pieces must be in direct contact with each other.
3. It is important to place the SensaT.R.A.C.™ Pad in a central location to ensure that exudate from one wound is not drawn across the other wound.
4. It is not recommended to bridge wounds of different etiologies or to bridge an infected wound to a non-infected wound.

TECHNIQUES FOR TUNNELING AND SINUS TRACTS

V.A.C.[®] WhiteFoam Dressing is recommended for use in tunnels. Always cut the V.A.C.[®] WhiteFoam Dressing wide at one end and narrow at the other. This will ensure that the opening to the tunnel or sinus tract remains patent until the distal portion of the tunnel has closed.

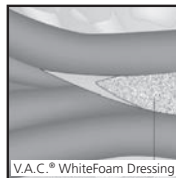
Continuous therapy should always be used until the tunnel has completely closed.

Do not place foam into blind or unexplored tunnels.

Initial dressing application for tunneling and sinus tracts

1. Determine the length and width of the tunnel or sinus tract using a measuring device of your choice.
2. Cut the foam to a size that accommodates the tunnel's dimensions, plus an additional **1 - 2 cm** into the wound bed. Gently place the foam into the tunnel or sinus tract all the way to the distal portion. The foam in the tunnel should communicate with the foam in the wound bed and **be easily visible**.

NOTE: *Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.*



Pull the V.A.C.[®] WhiteFoam Dressing out 1 - 2 cm, leaving the distal portion of the tunnel or sinus tract clear of foam.

Subsequent dressing changes

As the drainage begins to diminish and the presence of granulation tissue is noted, subsequent dressing changes may be altered in the following way:

1. Determine the length and width of the tunnel or sinus tract as above.
2. Cut the V.A.C.® WhiteFoam Dressing wide at one end and narrow at the other.
3. Gently place the foam into the tunnel or sinus tract all the way to the distal portion.
NOTE: *Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.*
4. Pull out **1 - 2 cm** and ensure that some tunnel foam communicates with the foam in the wound bed. This specific placement leaves the distal portion of the tunnel or sinus tract clear of foam and enables the distribution of higher pressures to collapse the edges together, allowing the wound to granulate together from the distal portion forward.
5. Initiate Continuous therapy at previous settings.
6. Repeat this procedure until the tunnel has closed.

UNDERMINING

It is recommended that Continuous therapy be used in the presence of wound undermining.

Initial dressing application

1. Gently place V.A.C.® WhiteFoam Dressing in all undermined areas, beginning at the distal portion. Do not pack foam into undermined areas.
2. Pull foam back out **1 - 2 cm**, leaving some foam in the wound to contact with the foam in the wound bed. This specific placement leaves the distal portion of the undermined area clear of foam, allowing the distribution of higher pressures to collapse the free areas of undermining together, encouraging the wound cavity edges to granulate together from the distal portion outward.
3. Monitor the amount of exudate and presence of granulation tissue at each dressing change.

Subsequent dressing changes

When the exudate volume decreases and the presence of granulation tissue is noted, subsequent dressing changes must be altered in the following way:

1. Gently place the foam into the undermined areas all the way to the distal portion. Do not pack foam into undermined areas.
2. Pull foam back out **1 - 2 cm**, leaving some foam in the wound to contact with the foam in the wound bed. This specific placement leaves the distal portion of the undermined area clear of foam, allowing the distribution of higher pressures to collapse the free areas of undermining together, encouraging the wound cavity edges to granulate together from the distal portion outward.
3. Initiate Continuous therapy at previous settings.
4. Monitor the amount of exudate and presence of granulation tissue at each dressing change.

FOOT WOUNDS

For wounds on the plantar surface or heel of the foot, it is best to use a bridging technique to ensure that additional pressure is not applied as a consequence of the placement of the tubing and / or SensaT.R.A.C.™ Pad. This involves using foam to allow placement of the SensaT.R.A.C.™ Pad or tubing on the dorsum of the foot (consider use of the V.A.C.® GranuFoam™ Heel Dressing).

Application technique to bridge SensaT.R.A.C.™ Pad away from wound



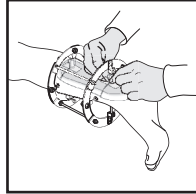
"C" cut for wounds on the plantar surface

1. Gently place appropriate V.A.C.® Foam Dressing into the wound.
2. To protect intact skin, apply V.A.C.® Drape or another occlusive barrier from the wound edge to the anterior aspect of the foot.
3. Cut another piece of foam in the shape of a letter "C".
4. Place the C-shaped piece of foam around the foot, extending from the wound to the lateral aspect, and ensure that it contacts the foam dressing in the wound. Ensure the foam does not come in contact with intact skin.

NOTE: Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.

5. Apply the V.A.C.[®] Drape over the foam and extend it to the anterior aspect of the foot, covering both the wound and the C-shaped piece of foam to obtain a seal.
6. Cut a **2.5 cm** hole in the drape on the anterior aspect of the foot and apply SensaT.R.A.C.[™] Pad.
7. Appropriate off-loading of the foot is essential in order to maximize the therapeutic benefits of V.A.C.[®] Therapy.

ORTHOPEDIC HARDWARE



Sealing V.A.C.[®] Drape
around orthopedic
hardware (pins)

The V.A.C.[®] Dressing can be placed on wounds with orthopedic hardware, such as pin sites.

Application Technique

1. Place appropriate V.A.C.[®] Dressing in the wound.
2. Apply moldable hydrocolloid strip around pin approximately **1.27 cm** above the level of wound, wrapping it around the pin, ensuring snug fit.
3. Cut V.A.C.[®] Drape to appropriate size and apply to wound.
4. Cut strips of drape and apply vertically over the pin and onto V.A.C.[®] Drape surrounding the pin. Do this from both sides of the pin. Pinch drape together to form airtight seal as V.A.C.[®] Therapy is initiated.

WOUND EDGE REAPPROXIMATION AND DRESSING TECHNIQUE

In open wounds without significant tissue loss, V.A.C.® Therapy may be used to encourage reapproximation of the wound edges.

1. Initial dressing application should include gently placing the V.A.C.® GranuFoam™ Dressing into the wound.

NOTE: Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.

2. Pressures should be adjusted appropriately to encourage the removal of excessive debris and fluid.
3. For subsequent dressing applications, the foam should be cut progressively smaller to allow controlled reapproximation of the wound edges.



Initial foam application after which progressively smaller pieces of foam are used



Controlled reapproximation of the wound edges allows for gradual closure



Complete closure is achieved

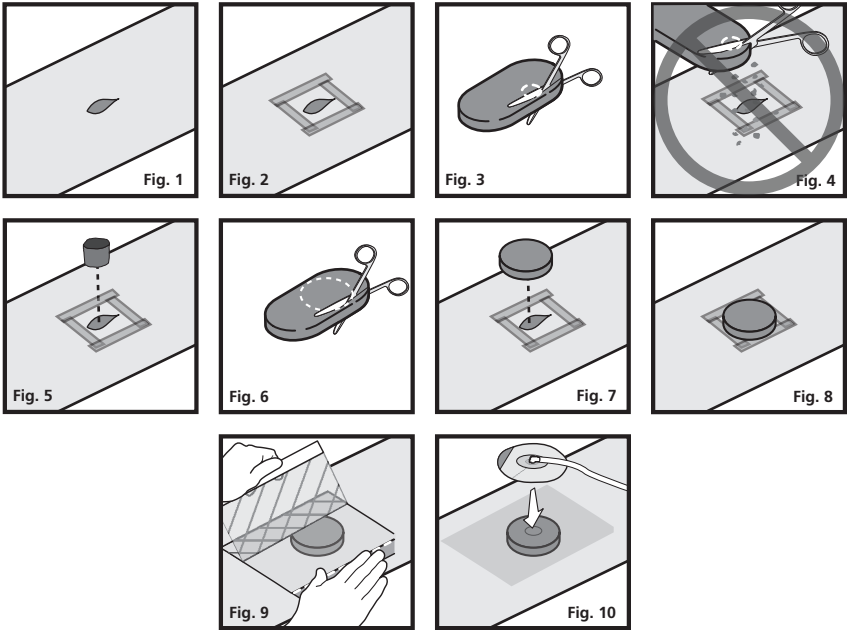
DRESSINGS AND FECAL INCONTINENCE

V.A.C.® Therapy can be used in the presence of fecal incontinence. Many incontinent patients with sacrococcygeal or perineal wounds can benefit from V.A.C.® Therapy. There are a number of methods to combat or control potential leakage of feces into the wound dressing.

- Consider using a rectal collection system (such as a fecal bag) or fecal incontinence management system.
- Frame the wound with V.A.C.® Drape, a flexible skin barrier or other skin preparation that will help prevent the dressing from coming off due to contact with feces. The barrier layer helps to create a dam between the anus and the area likely to come into contact with feces.

DRESSING SMALL WOUNDS AND SENSAT.R.A.C.™ PAD APPLICATION

For wounds that are smaller in dimensions (< 4 cm) than the SensaT.R.A.C.™ Pad, the following dressing application is recommended to protect the periwound tissue and prevent maceration:



1. Prepare the periwound area, by applying protective skin barrier preparation and 'picture frame' the wound with transparent film or hydrocolloid dressing (Fig. 2).
2. Cut foam dressing to dimensions that will allow the foam to be placed gently into the wound, but not overlap onto intact skin (Fig. 3).

NOTE: Do not cut the foam over the wound, as fragments may fall into the wound (Fig. 4). Away from the wound site, rub or trim foam, removing any fragments to ensure loose particles will not fall into or be left in the wound upon dressing removal.

3. Gently place foam into wound cavity, ensuring contact with all wound surfaces (Fig. 5). Do not force foam dressing into any area of the wound.

NOTE: Always count the total number of pieces of foam used in the wound. Document the foam quantity and dressing change date on the drape or Foam Quantity Label if available, and in the patient's chart.

4. To accommodate the size of the SensaT.R.A.C.™ Pad, cut another piece of foam large enough to extend **2 - 3 cm** beyond the SensaT.R.A.C.™ Pad (Fig. 6) and lay on the foam in the wound (Fig. 7). Assure the foam does not extend onto intact skin, that it is positioned on the product used to 'picture frame' the wound and protects the intact skin (Fig. 8).

5. Trim and place the V.A.C.® Drape to cover the foam dressing and an additional **3 - 5 cm** border (Fig. 9).
6. Pinch drape and cut a **2.5 cm** hole through the drape (not a slit). The hole should be large enough to allow for removal of fluid and / or exudate. It is not necessary to cut into the foam.
7. Apply the SensaT.R.A.C.™ Pad to the larger piece of foam (Fig. 10).
8. Seal the drape of the SensaT.R.A.C.™ Pad with additional drape, if necessary.
9. Initiate therapy.

INCISION MANAGEMENT

V.A.C.® GranuFoam™ Dressings may be used on closed surgical incisions to manage the environment of incisions that continue to drain following sutured or stapled closures.

Incision Site Preparation

1. Prior to surgery, shave or clip the surgical area per institution protocol where the dressing will be applied to improve dressing adhesion and seal integrity.
2. Immediately post surgery, clean the application site per physician's orders.
3. Pat the application site dry with sterile gauze. To ensure proper adhesion, the application site must be completely dry before dressing is applied.

Drain Tubes and Pain Management Control Devices

The V.A.C.® Therapy System dressings can be used with both drain tubes and pain devices, provided the dressing is not placed over tubing where it exits the skin. Surgical drains must be routed under the skin beyond the boundary of the dressing and function independently of the V.A.C.® Therapy System.

NOTE: *While the concomitant use of surgical drains is allowable with the V.A.C.® Therapy System, the system must not be used as an outlet or reservoir for the drain.*

Incision Site Dressing Application

Product	Dressing Dimension	Potential total cut length of 6.35 cm dressing strips	Maximum length of incision
V.A.C.® GranuFoam™ Small Dressing	10 x 7.5 x 3.2 cm	15.2 cm	10.2 cm
V.A.C.® GranuFoam™ Medium Dressing	18 x 12.5 x 3.2 cm	30.5 cm	25.4 cm
V.A.C.® GranuFoam™ Large Dressing	26 x 15 x 3.2 cm	43.2 cm	38.1 cm
V.A.C.® GranuFoam™ XL Dressing	60 x 30 x 1.5 cm	302.3 cm	297.2 cm

1. Select appropriate dressing.
2. Clean skin around incision, per institution protocol or physician's orders.
3. Apply skin protectant / skin adhesive to area around the incision and approximately 5.1 cm on either side to assist with dressing seal integrity
4. Protect intact skin on both sides of the suture line with V.A.C.® Drape, hydrocolloid, or other transparent film ('picture frame' the suture or staple line), leaving the suture line exposed.
5. Place a non-adherent layer (i.e. oil emulsion, petroleum or silicone dressing), minimum 7.6 cm wide, over length of incision. Include at least 2.5 cm over each end of the incision.
6. Cut V.A.C.® GranuFoam™ Dressing into strips minimally 6.3 cm wide. Cut enough strips to cover entire incision and at least 2.5 cm over either end.
7. Place V.A.C.® GranuFoam™ Dressing strips onto entire length of non adherent layer. If multiple strips are used, ensure that the strips touch each other so that negative pressure is applied over the length of the incision. Do not allow V.A.C.® GranuFoam™ Dressing to touch intact skin.
8. Cut V.A.C.® Drape minimum width of 17.8 cm to allow for coverage of the V.A.C.® GranuFoam™ Dressing and 3 - 5 cm contact with intact skin. An additional strip of drape can be used and overlapped at the edges to form a seal.
9. Place V.A.C.® Drape gently over the top of the V.A.C.® GranuFoam™ Dressing and then down the sides, extending onto intact skin.
NOTE: *To avoid trauma to the periwound skin, do not pull or stretch the drape over the foam during drape application.*
10. Pinch drape and cut a **2.5 cm** hole through the drape (not a slit).The hole should be large enough to allow for removal of fluid and / or exudate. It is not necessary to cut into the foam.
11. Apply the SensaT.R.A.C.™ Pad.
12. Initiate V.A.C.® Therapy at -125 mmg continuous.

4 - V.A.C.® THERAPY MONITORING

PAIN MANAGEMENT

Patients receiving V.A.C.® Therapy may experience a reduction in pain as the wound begins to heal. However, some patients experience discomfort during treatment or dressing changes. In line with institutional guidelines, a validated pain scoring tool should be used and pain scores should be documented where appropriate before, during and after dressing-related procedures.

In addition, the following strategies should be considered:

- If the patient complains of discomfort throughout therapy, consider changing to V.A.C.® WhiteFoam Dressing.
- Ensure the patient receives adequate analgesia during treatment.
- **If the patient complains of discomfort during the dressing change**, consider premedication, the use of a non-adherent dressing (page 23) layer before foam placement, using V.A.C.® WhiteFoam to dress the wound, or managing the discomfort as prescribed by the treating physician.
- A sudden increase or change in the character of the pain requires investigation.

LENGTH OF TREATMENT

The length of treatment depends on the treating physician's goal of therapy, wound pathology, wound size and management of patient co-morbidities. The average length of treatment is 4 - 6 weeks; however, many wounds may be ready for surgical closure in as little as one week. If a patient is not a surgical candidate, V.A.C.® Therapy may be utilized for an extended period of time as long as satisfactory progress continues.

WHEN TO DISCONTINUE V.A.C.® THERAPY

V.A.C.® Therapy should be discontinued when:

- The goal of therapy has been met. In some cases this will be full closure of the wound, in others the wound may be closed surgically.
- The wound shows no progress for one to two consecutive weeks and potential solutions to encourage wound healing have failed. Individual circumstances may vary.
- The patient is unable or unwilling to follow the medical plan of care (maximum benefits might not be achieved).

INDICATORS OF EFFECTIVE V.A.C.® THERAPY

- The exudate volume should gradually decrease over time.
- The wound appearance may change color and become a deeper red as V.A.C.® Therapy helps promote perfusion to the wound.
- The exudate color may change from serous to serosanguineous and some sanguineous or bloody drainage may also be noted during negative pressure therapy. This is due to the mechanism of action of V.A.C.® Therapy to help promote perfusion. The change in wound drainage characteristics may be related to disruption of capillary buds of granulation tissue. **If active bleeding develops suddenly or in large amounts during V.A.C.® Therapy, or if frank (bright red) blood is seen in the tubing or in the canister, immediately stop V.A.C.® Therapy, take measures to stop the bleeding and seek immediate medical assistance.**
- Wound measurements should begin to decrease as the active state of healing continues. Weekly wound measurements should be performed and documented per institution's protocol for comparison and to effectively assess for healing. A steady decrease in wound dimensions should be noted every week. If this does not occur, comprehensive assessment and troubleshooting interventions should be implemented immediately (See **Minimal Changes in Wound Size** section below). The InfoV.A.C.® and V.A.C.Ultra™ Therapy Systems offer wound imaging and dimensional documentation tools.
- As the wound continues to form granulation tissue, new epithelial growth should be seen at the wound edges.

INDICATORS OF INEFFECTIVE THERAPY

A steady decrease in wound dimensions should be noted every week. If this does not occur, comprehensive assessment and troubleshooting interventions should be implemented immediately (see below).

MINIMAL CHANGES IN WOUND SIZE

When there is little or no change in the wound for one to two consecutive weeks, and patient compliance, technique and underlying co-morbidities are not the cause, the following may be useful:

- Ensure the patient is receiving adequate pressure relief. For example, a patient with an ischial pressure ulcer may be sitting up for too long.
- Cut the foam slightly smaller than the wound edges for wounds with little depth, to enhance inward epithelial migration. Do not allow the wound edges to roll downward during V.A.C.® Therapy.
- Provide a 'therapeutic pause' by interrupting V.A.C.® Therapy for 1 - 2 days, then resume.
- Change the therapy settings from continuous to intermittent / DPC or vice versa.

- Evaluate if other products are being used in the wound that could potentially inhibit the delivery of negative pressure to the wound.
- Adjust pressure settings (as can be tolerated), for wounds that are inappropriate for intermittent / DPC therapy such as tunnels or wounds with high amounts of exudate.
- Evaluate nutritional status and supplement as necessary.
- Check the therapy hour meter to ensure that the actual number of therapy hours received matches the number of recommended therapy hours (22 hours a day). If the number of therapy hours is less than 22 each day, find out why there is a therapy deficit and remedy the situation.
- Assess for wound infection according to facility protocol or physician order. With physician order, obtain a microbiology culture or biopsy and treat accordingly.

DETERIORATION OF THE WOUND

If a wound has been progressing well from dressing change to dressing change but then deteriorates rapidly, consider the following interventions and, where necessary, seek the guidance / expertise of a specialist:

- If available on the therapy unit, check the therapy history log to ensure that the actual number of therapy hours received matches the number of recommended therapy hours (22 hours a day). If the number of therapy hours is less than 22 each day, find out why there is a therapy deficit and remedy the situation.
- Check for small leaks with a stethoscope, or by listening for a whistling noise or moving your hand around the edges of the dressing while applying light pressure. The ActiV.A.C.®, InfoV.A.C.® and V.A.C.Ulti™ Therapy Systems offer a Seal Check™ Leak Detector tool which provides audible and visual cues for leak location. Patch if necessary. However, avoid applying more than two layers of drape.
- Clean wound more thoroughly during dressing changes.
- Evaluate for signs and symptoms of infection and, if present, treat accordingly.
- Change dressing often, ensuring that it is being changed at least every 48 hours.
- Examine the wound and debride as necessary. Debride the wound edges if they appear non-viable or rolled under as this may inhibit the formation of granulation tissue and migration of epithelial cells over an acceptable wound base.
- Assess for osteomyelitis and, if present, treat accordingly.

CHANGES IN WOUND COLOR

If the wound assessment reveals dark discoloration:

- Rule out mechanical trauma. Relieve wound of excessive pressure, excess foam in the wound or a pulled or stretched drape over the foam. Remember to roll the drape over the foam; do not stretch it over foam.
- Decrease pressure by 25 mmHg increments.
- Determine whether the patient is taking anticoagulant medication, and if so, evaluate recent coagulation laboratory values.
- Thin the depth of the foam before applying the dressing to prevent overpacking or consider use of V.A.C.® GranuFoam™ Thin Dressing.

If the wound appears white, excessively moist or macerated:

- Check the therapy hour meter to ensure that the actual number of therapy hours received matches the number of recommended therapy hours. Find out why there is a therapy deficit and remedy the situation.
- The exudate volume should experience a gradual decrease as the extracellular debris is brought to equilibrium. Persistent large volumes of exudate may signal infection or other complications and should be evaluated by the prescribing clinician.
- Determine if occult infection is present.
- Increase pressure settings by 25 mmHg increments if drainage increases.
- Determine if there is a positional seal leak, which may be preventing effective exudate removal.
- Evaluate dressing technique.
- Assess for the need to bridge SensaT.R.A.C.™ Pad away from the wound.
- Protect the surrounding tissue with V.A.C.® Drape or a hydrocolloid.
- Isolate wound drainage from periwound skin (see page 14 for specific information).
- Determine if patient is adequately off-loaded or if there is a potential for external pressure on the wound / dressing, which may cause the wound exudate to be forced onto the periwound skin.

WOUND ODORS

Wounds treated with V.A.C.® Therapy may have an odor due to the foam and wound fluids, which contain bacteria and proteins. The type of bacteria and proteins present may be responsible for the type and strength of the odor.

- It is imperative that the wound be thoroughly cleaned during each dressing change to decrease bacterial load and minimize odor.
- If malodor remains after thorough cleaning of the wound, this may be a sign of possible infection.
- V.A.C.® Canister with Isolyser® gel can greatly reduce odors.
- Canister may need to be changed more often to control odor.
- If you determine that the V.A.C.® Therapy Unit is the source of odor, discontinue use of that therapy unit and contact your KCI representative for replacement.

5 - WOUND SPECIFIC INFORMATION

ACUTE / TRAUMATIC WOUNDS / PARTIAL-THICKNESS BURNS

V.A.C.® Therapy may be used in the care of patients with acute traumatic wounds, including partial thickness burns and orthopedic wounds.

The following setting recommendations help the clinician select therapy ranges according to wound type and treating physician's order. Selected ranges are a guide, based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and Objectives:

- Promote granulation tissue formation
- Promote perfusion
- Remove fluids, exudate and infectious materials
- Assist take of flap or skin graft

Table 5.1: Recommended settings for acute / traumatic wounds / partial-thickness burns

Initial cycle	Subsequent cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval*
Continuous first 48 hours	Consider Intermittent / DPC (5 min ON / 2 min OFF) for rest of therapy	125 mmHg	125 - 175 mmHg Titrate up for more drainage	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes

* See dressing change information in instructions for use provided with the V.A.C.® Dressing.

Clinical Considerations

- V.A.C.® Therapy may be used after debridement to help remove infectious material and assist granulation tissue formation.
- V.A.C.® Therapy can be used in the presence of orthopedic hardware (see **Orthopedic Hardware**, page 32). Clinicians should exercise nursing / medical judgement when observing the quality of granulation tissue and remain alert to any sign of infection that may indicate underlying osteomyelitis. In such cases, consult the treating physician.
- Tendons, ligaments, blood vessels, organs and nerves (vital structures) must be completely covered and protected prior to the administration of V.A.C.® Therapy. Coverage with a muscle flap or other thick layer of natural tissue provides the most effective protection. If not available, consider non-adherent dressing (page 23) material.

- V.A.C.® Foam may be applied directly over absorbable or non-absorbable mesh or intact fascia. Do not place the V.A.C.® Dressing over exposed blood vessels, organs, nerves or tendons.

If active bleeding develops suddenly or in large amounts during V.A.C.® Therapy, or if frank (bright red) blood is seen in the tubing or in the canister, immediately stop V.A.C.® Therapy , take measures to stop the bleeding and seek immediate medical assistance.

- For wounds with large amounts of exudate, consider increasing target pressures by 25 - 75 mmHg until the drainage amount tapers off. This will ensure adequate fluid removal and maintain integrity of the V.A.C.® Dressing seal.
- Continuous therapy is recommended throughout entire therapy for patients who are experiencing discomfort or using V.A.C.® WhiteFoam Dressing or where the wound contains tunneling / undermining or with flaps and grafts.
- V.A.C.® Therapy should not be initiated on a wound with osteomyelitis until the wound has been thoroughly debrided of all necrotic, non-viable tissue, including infected bone (if necessary) and appropriate antibiotic therapy has been initiated.
- In acute wounds with exposed bone or fractures, the V.A.C.® System may be used to help remove fluid and may remove infectious material secondary to the traumatic wound.

NOTE: *Protect intact bone with a single layer of non-adherent material (page 23).*

- Pressure settings with V.A.C.® WhiteFoam Dressing should be at least 125 mmHg and higher if tolerated by the patient.
- V.A.C.® GranuFoam™ Dressing is recommended for traumatic wounds with large tissue deficits.

DEHISCED WOUNDS

V.A.C.[®] Therapy is suitable for the treatment of a variety of large and small wounds arising from postoperative complications. In such cases, the principles of wound management are adequate surgical debridement and antibiotic as necessary, followed by the immediate application of V.A.C.[®] Therapy.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician's order. Selected ranges are a guide, based on common settings for each wound type. Individual patient conditions may vary. Consult physician to verify settings for each patient.

Goals and Objectives

- Apply controlled, localized negative pressure to help draw wound edges
- Provide a closed moist wound healing environment
- Promote perfusion
- Remove fluids, exudate and infectious materials

Table 5.3: Recommended settings for surgical wound dehiscences

Initial cycle	Target pressure V.A.C. [®] GranuFoam™ Dressing	Target pressure V.A.C. [®] WhiteFoam Dressing	Dressing change interval*
Continuous for duration of therapy	125 mmHg	125 - 175 mmHg Titrate up	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes
* See dressing change information in instructions for use provided with the V.A.C. [®] Dressing.			

Clinical Considerations for Dehiscid Wounds

- Select appropriate type of foam dressing based on wound characteristics and the goal of therapy. (see **Table 1.2** page 22).
- V.A.C.[®] Therapy may be used with retention sutures in place, but it is generally important to access and dress all of the wound under and between the sutures.
- Consider applying V.A.C.[®] Drape over adjacent drain (puncture) sites in the event that a properly applied V.A.C.[®] Dressing is not collapsing.
- Monitor characteristics of wound exudate and volume and report any significant changes to treating physician.
- The placement and size of the foam is critical for optimal results and to achieve reverse tissue expansion. See **Wound Edge Reapproximation and Dressing Technique**, (page 33).
- If bowel is visible in the wound base, it is best when possible to pull the greater omentum down over the visible bowel then proceed with V.A.C.[®] Therapy as usual. If the greater omentum is not available, then the surgeon may want to consider placing mesh over the bowel. However, applying the V.A.C.[®] Foam to bowel covered by mesh may produce granulation tissue on the bowel and result in adhesions.

- V.A.C.® Foam can be placed directly over synthetic mesh in abdominal wounds without exposed viscera and can facilitate the growth of granulation tissue from the structures beneath the mesh, extending up through the mesh into the wound base.
- V.A.C.® Therapy can be an important tool in the management of sternal wounds. Due to the vital structures located in the thoracic cavity, V.A.C.® Therapy should be applied with the utmost care and vigilance.
- Superficial sternal wounds are wounds in which the sternum is stable and intact, and no infection of the bone is present. These wounds are managed per the guidelines for dehisced wounds.
- Patients with deep sternal wounds (i.e. patients with mediastinitis or sternal wound infection) should have dressing changes supervised or performed by the lead clinician or specialist surgeon, preferably the cardiovascular surgeon.
 - Prior to the application of V.A.C.® Therapy to a patient with a deep sternal wound, read and follow the Safety Information (pages 7 - 16), specifically the **Warning** regarding **Bleeding** on page 9.
 - For sternal wounds, the lowest negative pressure setting is recommended initially. Monitor closely while progressing to target treatment pressure, as tolerated.
 - For patients with an unstable sternum, continuous therapy is recommended throughout the treatment period to help stabilize the chest wall. This helps pull the wound edges together and provides a “splinting” effect, which may allow the patient to be more mobile and more comfortable.
- For other than dehisced sternal or abdominal wounds, better results may be achieved with intermittent / DPC therapy once exudate levels are stable and where the primary goal is to create granulation tissue.

MESHED GRAFTS

V.A.C.® Therapy may not be suitable for placement over some products that create a barrier to fluid removal. Check with the product’s manufacturer prior to use with V.A.C.® Therapy.

Apply V.A.C.® Dressing immediately after graft placement and begin therapy as soon as possible. When using V.A.C.® GranuFoam™ Dressings, a non-adherent dressing (page 23) should be placed directly over the graft / tissue. In general, the pressure setting used to prepare the recipient bed before grafting should be continued after grafting. Continuous therapy should be used to provide a constant bolster.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician’s orders. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and Objectives

- Remove fluid
- Help protect wound environment; (e.g. minimize shearing forces)
- Provide bolster and stability for skin grafts (split and full thickness)
- Assist flap and skin graft take

Table 5.4: Recommended settings for meshed grafts and dermal substitutes

Initial cycle	Target pressure V.A.C.® GranuFoam™* Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval
Continuous for duration of therapy	75 - 125 mmHg	125 mmHg Titrate up for more drainage	Remove dressing after 4 - 5 days when using either foam (drainage should taper off before removal)
* 75 mmHg can be used in areas that will not be subjected to shear forces if the patient has persistent pain with higher pressures. 125 mmHg can be used in highly contoured areas where shear forces are present. The higher pressure may help to hold the graft more firmly in place.			

Recommended V.A.C.® Dressing Application Post-Graft Procedure:

1. Select a single layer of non-adherent dressing (page 23) (not required if using V.A.C.® WhiteFoam Dressing).
2. Cut the non-adherent material to the size of the grafted area plus a **1 cm** border, (i.e., so it extends about 1 cm outside the staple line), and place over the graft.
3. Cut the V.A.C.® GranuFoam™ Dressing to the same size as the non-adherent material and place it gently on top of the non-adherent layer.

NOTE: V.A.C.® WhiteFoam Dressing may also be used for fixation of skin grafts. A non-adherent dressing (page 23) is not required when using V.A.C.® WhiteFoam. Cut the V.A.C.® WhiteFoam Dressing to the size of the grafted area plus a **1 cm** border.
4. Apply V.A.C.® Drape according to the instructions for use supplied with the dressing.
5. Apply the SensaT.R.A.C.™ Pad and tubing.
6. Set negative pressure to the desired level as indicated in **Table 5.4**.
7. Expect more drainage in the tubing and canister in the first 24 hours of V.A.C.® Therapy post-graft, after which the drainage usually tapers off significantly. Significant drainage in the tubing post-graft may indicate a complication underneath the foam. If there is any sign of infection, remove the V.A.C.® Dressing and assess the wound.

PRESSURE ULCERS

In the management of full-thickness pressure ulcers (stages 3 and 4), V.A.C.® Therapy can be used either as a definitive treatment or to optimize the wound bed prior to surgical closure.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician’s order. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and objectives

- Promote granulation tissue formation
- Promote perfusion
- Provide a closed, moist wound healing environment
- Help manage wound environment

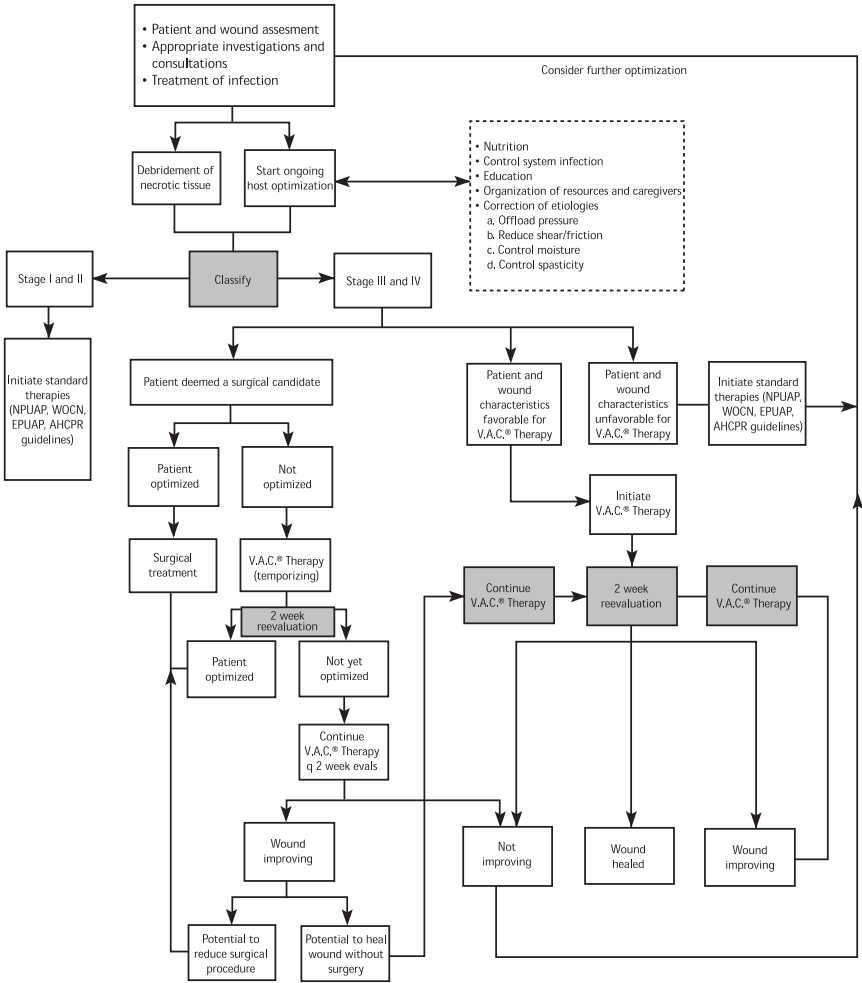
Table 5.5: Recommended settings for pressure ulcers

Initial cycle	Subsequent cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval*
Continuous first 48 hours	Consider Intermittent / DPC (5 min ON / 2 min OFF) for rest of therapy	125 mmHg	125 - 175 mmHg Titrate up for more drainage	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes
* See dressing change information in instructions for use provided with the V.A.C.® Dressing.				

Clinical Considerations

- All patients require a detailed medical and nutritional assessment and any factors that might influence etiology and / or healing must be addressed, particularly the provision of adequate nutrition and appropriate pressure relief.
- V.A.C.® Therapy is not a debriding tool and is not a substitute for effective surgical and / or other forms of debridement.
- If the patient’s skin cannot tolerate frequent dressing changes, it may not be necessary to remove the entire drape. Instead, cut the drape around the foam, remove the foam, irrigate the wound as directed by the clinician, then replace the foam and reseal with an additional piece of drape. V.A.C.® Drape around periwound area may be left on for one additional dressing change.
- Multiple layers of the V.A.C.® Drape may decrease the moisture vapor transmission rate, which may increase the risk of maceration, especially in small wounds, lower extremities, or load-bearing areas.
- Care must be taken to prevent trauma and / or pressure when placing V.A.C.® Tubing, particularly over bony prominences; consider bridging (see page 28).

MANAGEMENT OF A PATIENT WITH A PRESSURE ULCER USING V.A.C.[®] THERAPY



Niezgoda et al (2006). The effective management of pressure ulcers. *Advances in Skin and Wound Care*. Volume 19, Supplement 1, page 6.

DIABETIC FOOT ULCERS

V.A.C.® Therapy is increasingly being used in the management of diabetic foot ulcers.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician's orders. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and objectives

- Promote granulation tissue formation
- Promote perfusion
- Provide a closed, moist wound healing environment
- Help manage wound environment

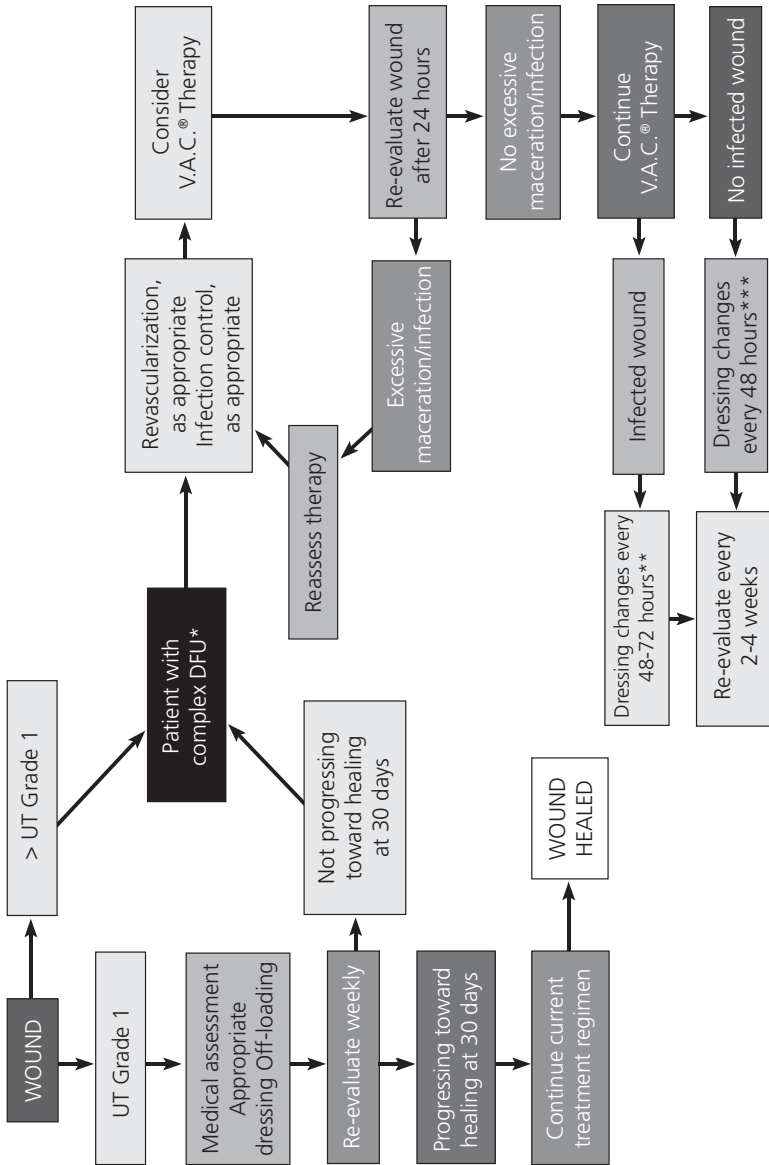
Table 5.6: Recommended settings for diabetic foot ulcers

Initial cycle	Subsequent cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval*
Continuous first 48 hours	Consider Intermittent / DPC (5 min ON / 2 min OFF) for rest of therapy	50 - 125 mmHg**	125 - 175 mmHg Titrate up for more drainage	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes
* See dressing change information in instructions for use provided with the V.A.C.® Dressing.				
** The higher pressures within the stated target pressure range are preferred. In cases of intolerance, using lower pressure is an option, but ensure that active exudate removal occurs.				

University of Texas Diabetic Foot Classification System

The University of Texas Diabetic Foot Classification system provides a detailed categorization, which includes infection and ischemia.				
Stage	Grade 0	Grade I	Grade II	Grade III
A	Preulcerative or postulcerative foot risk for further ulceration	Superficial ulcer without tendon, capsule, or bone involvement	Ulcer penetrating to tendon or joint capsule	Ulcer penetrating to bone
B	Presence of infection	Presence of infection	Presence of infection	Presence of infection
C	Presence of ischemia	Presence of ischemia	Presence of ischemia	Presence of ischemia
D	Presence of ischemia and infection	Presence of ischemia and infection	Presence of ischemia and infection	Presence of ischemia and infection
This is included as reference for the Treatment of the Diabetic Foot Algorithm on the following page. There are other classification systems, such as the Wagner Classification System for Diabetic Foot Ulcers, that may be utilized.				

TREATMENT OF DIABETIC FOOT ULCER (DFU) WITH V.A.C.® THERAPY†



† Used with permission. Adapted from Andros et al (2006). Consensus statement on negative pressure wound therapy (V.A.C.® Therapy) for the management of the diabetic foot wound. Ostomy Wound Management, Supplement June 2006, p. 23.

*Complex DFU = > UT Grade 1; may also include Grade 1 if patient has failed appropriate therapy as defined in recommendations.

**As of July 2007 manufacturer recommended dressing change interval is every 48 - 72 hours, no less than 3 times per week; evaluate for appropriate dressing change schedule.

***As of July 2007 manufacturer recommended dressing change interval is every 48 - 72 hours, no less than 3 times per week. Infected wounds must be monitored often and very closely. For these wounds, dressings may need to be changed more often than 48 - 72 hours; the dressing change intervals should be based on a continuing evaluation of wound condition and the patient's clinical presentation, rather than a fixed schedule.

CLINICAL CONSIDERATIONS FOR DIABETIC FOOT ULCERS

- As with any treatment for diabetic foot ulcers, success depends on accurate diagnosis and the management of underlying disease in combination with effective debridement of non-viable tissue.
- Off-loading is essential for successful healing of diabetic foot ulcers.
- Early identification and prompt treatment of infection is essential to prevent complications. In patients with diabetes, this may be difficult as classic signs such as pain, erythema, heat and purulence may be absent or decreased.
- Special dressing techniques may be considered (see **Foot Wounds**, pages 31 - 32).

VENOUS INSUFFICIENCY ULCERS

V.A.C.® Therapy can be successfully used in the management of venous insufficiency ulcers.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician’s orders. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and Objectives

- Reduce edema
- Promote perfusion
- Remove exudate from wound
- Promote granulation tissue formation
- Provide a closed, moist wound healing environment

Table 5.7: Recommended settings for venous insufficiency ulcers

Initial cycle	Subsequent cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval*
Continuous Therapy	Continuous Therapy (wounds tend to be highly exuding)	125 - 175 mmHg**	150 - 175 mmHg	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes
* See dressing change information in instructions for use provided with the V.A.C.® Dressing.				
** See Vertical Bridge Placement and Moderate to Highly Exuding Wounds section of V.A.C.® GranuFoam™ Bridge / V.A.C.® GranuFoam™ Bridge XG instructions for use.				

The use of prescription-wear compression garments or bandages is common in the treatment of venous insufficiency ulcers. Treatment of the underlying pathology in these ulcers is important and is not contraindicated when using V.A.C.® Therapy. Take caution to ensure that the use of V.A.C.® Therapy under a compression garment or bandage will not induce any pressure points that may result in discomfort or tissue damage to patient. Do not place the SensaT.R.A.C.™ Pad under any form of compression garment or bandage. Place V.A.C.® Dressings under such garments or bandages.

CHRONIC WOUNDS

V.A.C.® Therapy can be used either as a definitive treatment or to optimize the wound bed prior to surgical closure.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician’s order. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and objectives

- Promote granulation tissue formation
- Promote perfusion
- Provide a closed, moist wound healing environment
- Help manage wound environment

Table 5.8: Recommended settings for chronic wounds

Initial cycle	Subsequent cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval*
Continuous first 48 hours	Consider Intermittent / DPC (5 min ON / 2 min OFF) for rest of therapy	50 - 125 mmHg**	125 - 175 mmHg Titrate up for more drainage	Every 48 - 72 hours, no less than 3 times / week Infected wounds: Evaluate need for more frequent dressing changes
* See dressing change information in instructions for use provided with the V.A.C.® Dressing.				
** The higher pressures within the stated target pressure range are preferred. In cases of intolerance, using lower pressure is an option, but ensure that active exudate removal occurs.				

Clinical Considerations

- In chronic wounds where a diagnosis is uncertain, tissue biopsy for histological evaluation or other definitive testing is recommended.
- It is important to identify any underlying etiology and use relevant measures to address underlying disease processes.
- Chronic wounds may benefit from aggressive debridement of the soft tissue to remove any epithelial cells that may have migrated over the wound surface, sinus tract or tunnel.
- Care must be taken to prevent further trauma and or pressure when placing V.A.C.® Tubing, particularly over bony prominences.
- If a patient’s skin cannot tolerate frequent dressing changes, and the drape around the wound is intact, you may cut the drape around the foam, remove foam, clean wound as ordered, then replace foam and drape. Drape in periwound area may be left on for one additional dressing change.

NOTE: *Multiple layers of the V.A.C.® Drape may decrease the moisture vapor transmission rate, which may increase the risk of maceration, especially in small wounds, lower extremities or load-bearing areas.*

FLAPS

V.A.C.® Therapy is used in the immediate postoperative flap patient as a bolster to maintain the position of the tissues.

These setting recommendations help the clinician select from the therapy ranges according to wound type and treating physician's orders. Selected ranges are a guide based on common settings for each wound type. Individual patient conditions may vary. Consult treating physician to verify settings for each patient.

Goals and Objectives

- Provides bolster and stability for flap
- Help protect the wound environment
- Remove fluids and exudate
- Assist flap take

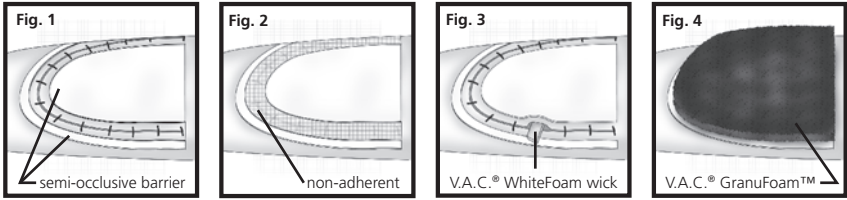
Table 5.9: Recommended settings for flaps

Initial cycle	Target pressure V.A.C.® GranuFoam™ Dressing	Target pressure V.A.C.® WhiteFoam Dressing	Dressing change interval
Continuous for duration of therapy	125 - 150 mmHg	125 - 175 mmHg Titrate therapy up to manage increase in drainage	Remove dressing 72 hours postoperatively. For complications or infected wounds, evaluate need for more frequent dressing changes.

Clinical Considerations

- Higher pressures may be considered with large, bulky flaps to help bolster the flap.
- When there is a need to assess flap for sign of ischemia or infection and the flap needs to be inspected during therapy, cut the V.A.C.® GranuFoam™ Dressing in half before applying it and place the drape in strips, with one strip directly over the area where the two halves of foam meet. Removing this strip of drape allows the clinician to gently separate the foam to inspect the underlying tissue. After inspecting the flap, place the foam pieces back together, reseal with an additional strip of drape and continue therapy.

FLAP DRESSING APPLICATION WITH V.A.C.® THERAPY



1. Suture the flap in place using about a third fewer sutures than usual. The greater spacing will allow V.A.C.® Therapy to remove fluid through the suture line.
2. Place a single layer of V.A.C.® Drape or other semi-occlusive barrier, such as a hydrocolloid dressing or vapor-permeable adhesive film dressing, over the intact epidermis on top of the flap and on the opposite side of the suture line (Fig. 1). Place a single layer of non-adherent dressing (page 23) over the exposed suture line (Fig. 2).
3. If the recipient bed is exuding heavily, cut a thin strip of V.A.C.® WhiteFoam Dressing (Fig. 3) and place it under the flap, between the sutures, to wick fluid from the interior of the flap. Make sure the V.A.C.® WhiteFoam Dressing and V.A.C.® GranuFoam™ Dressing communicate directly.
4. Select an appropriate size of V.A.C.® GranuFoam™ Dressing to cover the entire flap (Fig. 4), including the suture line and **2 - 3 cm** beyond the flap. Ensure the area covered by the foam is protected intact skin (Step 2 above).
5. Prepare and apply the V.A.C.® Drape over the foam. Apply a SensaT.R.A.C.™ Pad and connect to canister tubing.
6. Initiate therapy on Continuous setting, as indicated in Table 5.9.
7. Removal of the V.A.C.® Drape requires lateral stretch (pull) on the drape to prevent lifting of the flap.

ENTERIC FISTULA

In certain circumstances, V.A.C.® Therapy may help to promote healing in wounds with an enteric fistula. If considering V.A.C.® Therapy involving enteric fistula, it is recommended to seek support from an expert clinician. V.A.C.® Therapy is not recommended or designed for fistula effluent management or containment, but as an aid to wound healing in and around the fistula.

The goal of therapy depends on whether the fistula being treated is considered acute or chronic.

- For acute fistula, the goal is to promote wound healing to enable closure of the acute enteric fistula.
- For chronic fistula, the enterocutaneous fistula is segregated from the surrounding or adjacent abdominal wound and V.A.C.® Therapy is applied to the wound. The effluent from the fistula is diverted into another containment system. This allows time for the patient's overall health to stabilize and sufficient healing to take place to enable subsequent surgical repair.

Fistula Management

Acute Candidate Selection

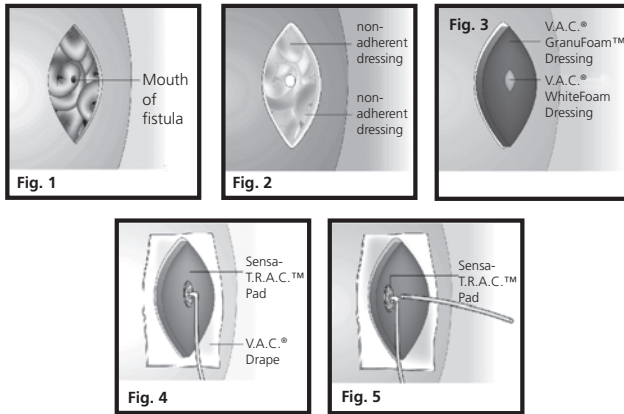
- Enteric Fistula
- Acute Formation: No evidence of epithelial cells / growth on opening of fistula
- Fistula opening must be easily visualized and accessed
- NPO (Nothing by mouth)
- TPN (Total Parental Nutrition)
- Minimal to moderate amounts of effluent
- Effluent is thin to slightly viscous consistency

Chronic Candidate Selection

- Enteric Fistula - non-surgical candidate
- Chronic Formation: Evidence of epithelial cells / growth (stomatization)
- Mouth of fistula must be easily visualized and accessed
- NPO (Nothing by mouth)
- TPN (Total Parental Nutrition)

Instructions For Enteric Fistula

I. Acute Enteric Fistula Within a Wound (Complex)



1. Cover the mouth of the fistula with 2 - 3 layers of petroleum-based gauze.
2. Thoroughly irrigate and clean the abdominal wound as directed by the physician or institutional protocol.
3. Remove the layers of petroleum-based gauze from the mouth of the fistula.
4. Cover the mouth of the fistula with a single layer of non-adherent material (page 23).
5. Cover all areas of exposed bowel or other organs with multiple layers of a non-adherent material (page 23).
6. Cut a piece of V.A.C.® WhiteFoam Dressing to size **1 - 2 cm** larger than the mouth of the fistula. Apply the V.A.C.® WhiteFoam Dressing piece directly over the non-adherent material on the mouth of the fistula. The foam should extend **1 - 2 cm** beyond the mouth of the fistula.
7. Cut and gently place V.A.C.® GranuFoam™ Dressing into the remaining wound. Ensure the V.A.C.® GranuFoam™ Dressing is in direct contact with the V.A.C.® WhiteFoam Dressing. The V.A.C.® GranuFoam™ Dressing can also be placed directly over the V.A.C.® WhiteFoam Dressing.
8. Size, trim and apply the drape to cover the entire foam dressing as well as an additional **3 - 5 cm** border.
9. Cut a **2.5 cm** round hole in the drape DIRECTLY over the location of the mouth of the fistula.
10. Apply the SensaT.R.A.C.™ Pad.
11. Initiate pressure at 125 mmHg negative pressure, or per physician's order.
12. Use continuous therapy throughout treatment.

13. If effluent is noted in the tubing after negative pressure is initiated:
 - a. Increase pressure in increments of 25 mmHg for 20 - 30 minutes and then check for effluent.
 - b. If effluent is still present, continue to increase the pressure and observe up to a maximum of 200 mmHg until there is no effluent in the tubing.
 - c. If effluent continues to flow into the tubing after all measures have been tried, remove V.A.C.® Therapy Dressing and consider reapplication. Reapplication of the dressing may be necessary several times to identify an effective application procedure.
 - d. An early sign of initial approximation of the fistula is a reduction in the amount of effluent.
 - e. If unable to identify a successful procedure, an alternative method of treating the patient should be considered.

II. Chronic Enteric Fistula - Pouching Method

1. Cover the mouth of the fistula with 2 - 3 layers of petroleum-based gauze.
2. Thoroughly irrigate and clean the abdominal wound as directed by per physician order or institution protocol.
3. Remove the layers of petroleum-based gauze from the mouth of the fistula.
4. Wrap petroleum-based gauze around the mouth of the fistula, this is to segregate the effluent from the wound. If not using petroleum-based gauze consider using pectin rings as this can segregate the effluent from the wound.
5. Place a 2 x 2 piece of gauze over the mouth of the fistula for temporary effluent absorption during initial application of V.A.C.® Therapy.
6. Cover all areas of exposed bowel or other organs with multiple layers of non-adherent material (page 23).
7. Cut and gently place V.A.C.® GranuFoam™ Dressing into the remaining wound. DO NOT place foam over the mouth of the fistula or over the products.
8. Apply drape over the entire abdominal dressing.
9. Apply the SensaT.R.A.C.™ Pad to a location central to the wound, but not immediately adjacent to the fistula.
10. Initiate V.A.C.® Therapy, ensuring seal is maintained.
11. Mark the area on the drape identifying the site of the mouth of the fistula.
12. Turn off the negative pressure and allow the foam to decompress.
13. Carefully cut an opening in the drape that is directly over the 2 x 2 gauze and mouth of the fistula.
14. Remove the 2 x 2 gauze, exposing the chronic fistula.
15. Apply barrier ring or moldable hydrocolloid paste on the drape in a circle around the mouth of the fistula. Gently press the drape around the fistula to seal with the barrier ring or moldable hydrocolloid paste. This encourages effective sealing and isolation of the effluent from the surrounding wound.

16. Initiate V.A.C.[®] Therapy at a pressure of 100 - 125 mmHg or per physician's order. Observe for compression of the foam.
17. Apply the ostomy appliance or fecal incontinence bag of choice as directed over the exposed fistula and the previously placed ring or paste.
18. Make sure the appliance is securely in place and the end of the appliance is adequately sealed.
19. Use continuous therapy throughout treatment.
20. Monitor intake and output.
21. Educate the patient, when possible, to alert staff when it is necessary to empty the V.A.C.[®] Canister.

6 - ADDITIONAL INFORMATION FOR V.A.C.® THERAPY

V.A.C.® THERAPY AND HYPERBARIC OXYGEN (HBO) THERAPY

When patients treated with V.A.C.® Therapy are receiving regular hyperbaric oxygen treatments, the medical director of the hyperbaric chamber can authorize the disconnection of the V.A.C.® Therapy Unit and canister from the tubing so that pressure changes in the chamber enter the tubing and the dressing. In such cases the following procedure is recommended:

NOTE: *The V.A.C.® GranuFoam™ Bridge Dressing contains additional synthetic materials and may pose a risk during Hyperbaric Oxygen Therapy.*

1. Do not take the V.A.C.® Therapy Unit into a hyperbaric oxygen chamber. The V.A.C.® Therapy Unit is not designed for this environment and **should be considered a fire hazard in that environment**. See **Hyperbaric Oxygen Therapy** section (page 13).
2. After disconnecting the V.A.C.® Therapy Unit from the dressing / canister either a) replace the V.A.C.® Dressing with another HBO-compatible material during the hyperbaric treatment or b) follow the steps below.
3. Close the dressing tubing and canister tubing clamps before disconnecting. Disconnect the dressing tubing from the canister tubing.
4. Open the clamp on the dressing tubing and cover with dry gauze. The tubing on the SensaT.R.A.C.™ Pad is not to be clamped or capped during hyperbaric treatment.

WARNING: Never leave a V.A.C.® Dressing in place without active V.A.C.® Therapy for more than two hours. If therapy is off for more than two hours, remove the old dressing and irrigate the wound. Either apply a new V.A.C.® Dressing from an unopened sterile package and restart V.A.C.® Therapy; or apply an alternative dressing, such as wet to moist gauze, as approved during times of extreme need, by treating clinician.

5. After hyperbaric oxygen treatment, reconnect the V.A.C.® Therapy Unit and resume therapy. Check the dressing for air leaks and ensure that the seal is intact.

V.A.C.® DRESSINGS AND DIAGNOSTIC IMAGING

- When undergoing X-ray, MRI, fluoroscopy or dye tests the decision to remove the dressing is to be made by the radiologist, radiology technician, and / or treating physician.

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.

- In diagnostic procedures there is a possibility of shadow casting in the area of the wound.
- The dressings and attached tubing can be safely left in place for all of these procedures.
- The V.A.C. GranuFoam Silver™ Dressing (when used) contains metallic silver that may impair visualization with certain imaging modalities.

V.A.C.® THERAPY AND MAGNETIC RESONANCE IMAGING (MRI)

When patients treated with V.A.C.® Therapy require MRI, the following special considerations should be used:

- **The V.A.C.® Therapy Unit is MR unsafe.** Do not take the V.A.C.® Therapy Unit into the MR environment (see **Magnetic Resonance Imaging** section, pages 12 - 13).
- Taking the V.A.C.® Therapy Unit into the active MR environment could cause injury to the patient or caregiver or damage the equipment.
- The V.A.C.® Dressing can typically remain on the patient with minimal risk in an MR environment, assuming that use of V.A.C.® Therapy is not interrupted for more than two hours.
- The V.A.C.® GranuFoam™ Dressing, the V.A.C.® WhiteFoam Dressing, the SensaT.R.A.C.™ Pad and tubing contain no metallic components that would require removal prior to MRI.
- The V.A.C. GranuFoam Silver™ Dressing has shown to pose no known hazard in an MR environment (see **Magnetic Resonance Imaging** section, pages 12 - 13).
- The clinician or radiologist may choose to remove the V.A.C.® Dressing prior to imaging in an area where the wound is located due to potential shadowing.

ORDERING THE V.A.C.® THERAPY SYSTEM

All V.A.C.® Therapy systems require a physician's order. The following information should be included for payor authorization:

- Product name: KCI V.A.C.® Therapy, no substitutions
- Exact location and type of wound to receive therapy
- Wound dimensions
- Pre-medication instructions
- Wound cleansing instructions (cleanser, normal saline, etc.)
- Therapy settings (i.e., Intermittent / DPC or Continuous)
- Pressure settings in mmHg
- Dressing change intervals
- Dressings to be used (i.e., V.A.C.® GranuFoam™ Dressing, V.A.C. GranuFoam Silver™ Dressing, specific specialty dressings or V.A.C.® WhiteFoam Dressing)
- Adjunct dressings to be used (non-adherent materials (page 23) or other)

For more information and required authorization forms for certain payors, visit www.kci1.com or call 1-800-275-4524.

TRANSITIONING PATIENTS BETWEEN CARE SETTINGS

- Discharge planning begins as soon as the patient is admitted to the hospital. When a patient is placed on V.A.C.® Therapy, contact the Discharge Planner / Case Manager if this patient is identified as a candidate for transfer to a lower acuity care setting with V.A.C.® Therapy.
- Include the V.A.C.® Therapy orders, as detailed in the previous section, in the transfer or discharge orders.
- Include current wound measurements and condition of the wound in the discharge assessment.
- Forms for approval may be required for Medicare / Medicaid and managed care patients in certain care settings. As soon as the patient is identified as a candidate for transfer to a lower acuity care setting with V.A.C.® Therapy, complete and submit the approval forms.
- When a patient is transitioned from one care setting to another, the V.A.C.® Therapy Unit will be provided prior to discharge or be delivered to the patient's post-acute care setting.
- The new unit cannot be delivered to the patient prior to Medicare, private insurance or facility approval.
- If the post-acute V.A.C.® Therapy Unit is not available for discharge, and therapy will be off for more than two hours, remove the V.A.C.® Therapy dressings before the patient is discharged. Apply an alternative dressing, such as wet to moist gauze, as approved during times of extreme need, until the new V.A.C.® Therapy Unit is delivered, and appropriately trained personnel are prepared to provide on-going care of the patient.
- A V.A.C.® Therapy Unit should not be discharged with a patient if the clinician has a question about the availability of appropriately trained personnel. V.A.C.® Therapy Dressings should be removed and an appropriate alternative dressing applied until trained personnel are secured by the healthcare provider and a V.A.C.® Therapy Unit is delivered.
- For information on transitioning patients to home care, refer to the **Considerations for Transitioning V.A.C.® Therapy into Home Care** (page 16) section of these guidelines.
- Contact your local KCI representative or call 1-800-275-4524 for assistance, if needed.

KCI CONTACT INFORMATION

If you have questions, or for additional information, please contact your local KCI representative or contact KCI directly at 1-800-275-4524. Visit our website at www.kci1.com. For a medical emergency, contact your local emergency number.

7 - V.A.C.® THERAPY UNIT AND SENSAT.R.A.C.™ SYSTEM DISPOSABLES

V.A.C.® THERAPY ESSENTIALS





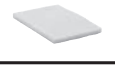



Reference Guide for V.A.C.® Disposables

V.A.C.® Dressings Package Contents*		Part Numbers / Dressings per case
	V.A.C.® GranuFoam™ Small Dressing 1 V.A.C.® GranuFoam™ Dressing (10 x 7.5 x 3.2 cm), 1 drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275051/10 M8275051/5
	V.A.C.® GranuFoam™ Medium Dressing 1 V.A.C.® GranuFoam™ Dressing (18 x 12.5 x 3.2 cm), 2 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275052/10 M8275052/5
	V.A.C.® GranuFoam™ Large Dressing 1 V.A.C.® GranuFoam™ Dressing (26 x 15 x 3.2 cm), 2 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275053/10 M8275053/5
	V.A.C.® GranuFoam™ X-Large Dressing 1 V.A.C.® GranuFoam™ Dressing (60 x 30 x 1.5 cm), 5 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275065/5
	V.A.C. GranuFoam Silver™ Small Dressing 1 V.A.C. GranuFoam Silver™ Dressing (10 x 7.5 x 3.2 cm), 1 drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275098/10 M8275098/5
	V.A.C. GranuFoam Silver™ Medium Dressing 1 V.A.C. GranuFoam Silver™ Dressing (18 x 12.5 x 3.2 cm), 2 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275096/10 M8275096/5
	V.A.C. GranuFoam Silver™ Large Dressing 1 V.A.C. GranuFoam Silver™ Dressing (26 x 15 x 3.2 cm), 2 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275099/10 M8275099/5
	V.A.C.® Simplace™ Small Dressing 2 V.A.C.® GranuFoam™ Spiral Dressings (7.5 x 11.5 x 1.75 cm), 2 3M™ Tegaderm™ drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275041/10 M8275041/5
	V.A.C.® Simplace™ Medium Dressing 2 V.A.C.® GranuFoam™ Spiral Dressings (14.5 x 17 x 1.75 cm), 3 3M™ Tegaderm™ drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275040/10 M8275040/5
	V.A.C.® Simplace™ EX Small Dressing 2 V.A.C.® GranuFoam™ Spiral Dressings (7.5 x 11.5 x 1.75 cm), 2 strips of V.A.C.® Drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275046/5
	V.A.C.® Simplace™ EX Medium Dressing 2 V.A.C.® GranuFoam™ Spiral Dressings (14.5 x 17 x 1.75 cm), 2 drape strips and 1 V.A.C.® Drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275045/5
	V.A.C.® GranuFoam™ Bridge Dressing 1 foam dressing (6 x 17 x 1.9 cm), 1 GranuFoam™ Bridge (67 cm) with integrated SensaT.R.A.C.™ Pad with connector, 1 perforated drape with 5 perforated drape strips, 1 disposable ruler	M8275042/10 M8275042/5
	V.A.C.® GranuFoam™ Bridge XG Dressing 2 V.A.C.® GranuFoam™ Spiral Dressings, 1 GranuFoam™ Bridge (67 cm) with integrated SensaT.R.A.C.™ Pad with connector, 1 drape, 1 perforated drape with 5 perforated drape strips, 1 disposable ruler	M8275044/5

* Specifications subject to change without notice. Contact KCI for current product catalog.

V.A.C.® THERAPY ESSENTIALS (cont.)





Reference Guide for V.A.C.® Disposables

V.A.C.® Dressings Package Contents*		Part Numbers / Dressings per case
	V.A.C.® GranuFoam™ Round Dressing 1 perforated V.A.C.® GranuFoam™ Dressing (12.7 cm diameter), 1 drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275075/10 M8275075/5
	V.A.C.® GranuFoam™ Thin Dressing 1 perforated V.A.C.® GranuFoam™ Dressing (26 x 16 x 1.6 cm), 2 drapes, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275081/10 M8275081/5
	V.A.C.® GranuFoam™ Hand Dressing 1 hand-shaped V.A.C.® GranuFoam™ Dressing with finger separators, 1 sealing bag, 1 SensaT.R.A.C.™ Pad with connector	M8275064/5
	V.A.C.® GranuFoam™ Heel Dressing 1 foam dressing, 2 contoured dressings, 4 drape strips, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275074/5
	V.A.C.® WhiteFoam Small Dressing (foam only) 1 polyvinyl alcohol foam dressing (10 x 7.5 x 1 cm)	M6275033/10
	V.A.C.® WhiteFoam Large Dressing (foam only) 1 polyvinyl alcohol foam dressing (10 x 15 x 1 cm)	M6275034/10
	V.A.C.® WhiteFoam Small Dressing 1 polyvinyl alcohol foam dressing (10 x 7.5 x 1 cm), 1 drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275068/10 M8275068/5
	V.A.C.® WhiteFoam Large Dressing 1 polyvinyl alcohol foam dressing (10 x 15 x 1 cm), 1 drape, 1 SensaT.R.A.C.™ Pad with connector, 1 disposable ruler	M8275067/10 M8275067/5

* Specifications subject to change without notice. Contact KCI for current product catalog.

V.A.C.® THERAPY ESSENTIALS (cont.)









Reference Guide for V.A.C.® Disposables

V.A.C.® System Accessories Package Contents*		Part Numbers / Dressings per case
	SensaT.R.A.C.™ Pad Only 1 SensaT.R.A.C.™ Pad with tubing, clamp and connector	M8275057/5
	V.A.C.® Drape 1 occlusive drape (30.5 x 26 cm)	M6275009/10
	V.A.C.® Tubing Cap Secures end of canister tubing	M6275069/10 M6275069/5
	V.A.C.® Y Connector Allows multiple dressings to be connected to one V.A.C.® Therapy Unit	M6275066/10 M6275066/5

* Specifications subject to change without notice. Contact KCI for current product catalog.

V.A.C.® THERAPY ESSENTIALS (cont.)

Reference Guide for V.A.C.® Disposables

V.A.C.® Canisters Package Contents*		Part Numbers / Canisters per case
	InfoV.A.C.® 500 mL Canister with Gel 1 canister, tubing, clamp and connector	M8275063/10 M8275063/5
	InfoV.A.C.® 500 mL Canister without Gel 1 canister, tubing, clamp and connector	M8275071/10 M8275071/5
	InfoV.A.C.® 1,000 mL Canister with Gel** 1 canister, tubing, clamp and connector	M8275093/5
	V.A.C. ATS® 500 mL Canister with Gel 1 canister, tubing, clamp and connector	M6275063/10 M6275063/5
	V.A.C. ATS® 500 mL Canister without Gel 1 canister, tubing, clamp and connector	M6275071/10 M6275071/5
	V.A.C. ATS® 1,000 mL Canister with Gel** 1 canister, tubing, clamp and connector	M6275093/5
	ActiV.A.C.® 300 mL Canister with Gel 1 canister, tubing, clamp and connector	M8275058/10 M8275058/5
	V.A.C. Freedom® 300 mL Canister with Gel 1 canister, tubing, clamp and connector	320058/10 320058/5

* Specifications subject to change without notice. Contact KCI for current product catalog.

** 1000 mL canister is recommended for Acute Care (hospital) use only

Index

A

- ActiV.A.C.® Therapy System 17
- Acute wounds 22, 43
- Adherence of dressing
 - pain management 37
- analgesia 19, 37
- Antibiotic therapy 11, 44
- Antibiotic therapy, osteomyelitis 11, 44
- Anticoagulant medication 9, 10, 40
- Autonomic dysreflexia 14

B

- Biopsy 39, 53
- Bleeding 9, 10, 12, 14, 16, 19, 20, 38, 44, 46
- Blood vessels, exposed 6, 8, 15, 21, 43, 44
- Bone, exposed 44
- Bowel, exposed 45, 57, 58
- Bridging technique 28
- Burns, partial thickness 7, 43

C

- Canisters 5, 7, 16, 21
 - 1000 mL 10
 - changing 24
- Chest wall, unstable 14, 46
- Chronic wound 53
- Circulatory compromise 14, 19
- Circulatory status 14
- Circumferential dressing 14
- Cleaning wounds 41
- Color of wounds 38, 40
- Continuous therapy 14
 - enteric fistula 14
 - meshed grafts and bioengineered tissues 47
 - role in stabilization of wounds 14
 - sternal wounds 20
 - tunnels 20
- Contraindications 8

D

- Debridement 6, 8
 - acute wounds 43
 - chronic wounds 53
 - dehised wounds 45
 - diabetic foot ulcers 52
 - osteomyelitis 11
 - pressure ulcers 48
- Deep wounds, choice of foam dressing 22
- Default pressure setting 19

- Delayed primary closure 7
- Diabetic foot ulcers 7, 50, 51
 - choice of foam dressing 22
 - clinical considerations for 52
- Diagnostic imaging 15, 62
- Discoloration of wound 15, 40
- Discomfort
 - choice of foam dressing 21, 22
 - management 37
 - pressure settings 19
 - therapy settings 20
- Disconnecting from the V.A.C.® Therapy Unit 25
 - during hyperbaric oxygen therapy 13, 61
 - prior to magnetic resonance imaging 62
- Discontinuation of therapy 37
 - acrylic adhesive 12
 - autonomic dysreflexia 14
 - bleeding 9, 12
 - circulatory compromise 14
 - infected wounds 11
 - periwound irritation 14
 - wound odors 41
- Disposables 21, 63, 65, 66, 67, 68
- Drainage
 - meshed grafts and bioengineered tissues 47
 - pressure settings 19
 - therapy settings 20
 - tunneling 30
 - volume and appearance 38
- Drape
 - acrylic adhesive 12
 - application 54, 55, 57
 - bridging 28
 - circumferential dressing application 14
 - deterioration of the wound 39
 - dressing changes 48, 53
 - dressings and fecal incontinence 33
 - dressing small wounds 34
 - maintenance of seal 23
 - protect periwound skin 14
 - protect surrounding tissue 40
- Dressing application
 - flaps 55
 - meshed grafts and bioengineered tissues 47
 - tunneling technique 29
 - undermining 30
- Dressings 21
 - application technique
 - flaps 55
 - foot wounds 31
 - in fecal incontinence 33
 - meshed grafts and bioengineered tissues 47
 - small wounds 34
 - wound edge reapproximation 33

- ensuring integrity 23
- removal
 - prior to hyperbaric oxygen therapy 61
 - prior to magnetic resonance imaging 62
- selection and use 22

Dry wounds, choice of foam dressing 22

Duration of treatment 37

E

Effluent in tubing, enteric fistula 56

Elderly patients, pressure settings 19

Enteric fistula 14, 56

- instructions for 57

Excessive drainage

- flaps 54
- pressure settings 19

Exudate

- post graft 47
- volume and appearance 38

F

Fascia

- non-intact 14

Fecal incontinence 33

Flaps 54

- choice of foam dressing 22
- therapy settings 20, 54

Foam dressing. *See* Dressings

Foot wounds

- dressing technique 31

Fractures, exposed 44

G

Grafts, meshed or bioengineered tissue 46

- choice of foam dressing 22
- continuous therapy 20
- dressing application technique 47
- therapy settings 47

Granulation tissue

- control of, choice of foam dressing 22
- excessive, pressure setting 19

H

Hardware, orthopedic 32

Healing progress 37

Hyperbaric oxygen therapy 61

I

Indications 7

Indications for continuous therapy 20

Indications of effective therapy 38

Indications of ineffective therapy 38

Infected wounds 11

- bone 11, 44
- bridging 28
- diabetic patients 52
- vessels 10
- with V.A.C. GranuFoam Silver™ Dressing 11
- Y-connector technique 27

InfoV.A.C.® Therapy System 17

Inspection of flaps 54

Intensity feature 20

Intermittent therapy 5, 14, 20, 38, 39, 46, 63

L

Large wounds

- pressure settings 19
- therapy settings 20

Leaks

- alarm 5
- checking for 23, 39
- fecal incontinence 33

Length of treatment 37

M

Maceration 14, 23, 34, 48, 53

Magnetic resonance imaging (MRI) 12, 62

Maintaining a seal 24

Malignancy 8

Measurements of wound 38

Mechanical trauma 40

Meshed grafts 46

Monitoring wounds 11, 30, 45, 46

Multiple wounds 27

N

Necrotic 8, 11, 44

Negative pressure, effects on wound healing 5

Nerves, exposed 6, 8, 11, 15, 16, 21, 43

Nutritional status 39, 48

- and pressure settings 19

O

Organs, exposed 6, 8, 9, 10, 16, 21, 43, 44, 57, 58

Orthopedic hardware 32

Orthopedic wounds 43

Osteomyelitis 8, 11, 39, 43, 44

P

Pain

- choice of foam dressing 22
- diabetic patient 52
- during dressing removal 37
- infected wounds 11
- pressure settings 19, 20
- therapy settings 20

Pain management 37

Perineal wounds, fecal incontinence 33

Periwound area

- monitoring 11, 14
- protect 14, 40
- small wounds 34

Pin sites 32

Postoperative wounds 45, 54

Precautions 13

Pressure settings

- acute/traumatic wounds/partial thickness burns 43
- adjustment 19
- chronic wounds 53
- dehisced wounds 45
- diabetic foot ulcers 50
- flaps 54
- meshed grafts and bioengineered tissues 47
- pressure ulcers 48
- V.A.C.® WhiteFoam Dressing 21
- venous insufficiency ulcers 52

Pressure ulcers 48

- choice of foam dressing 22

R

Rapid deterioration of wound 39

Recording dressing change date 11

Recording dressings used 6, 11, 23, 29, 30, 31, 33, 34

Retention sutures 45

S

Sacrococcygeal wounds, fecal incontinence 33

Saline irrigation, as an aid to dressing removal 12

Seal

- continuous therapy 20
- maintenance of 24
- pressure settings 19

SensaT.R.A.C.™/T.R.A.C.™ technology 5

- SensaT.R.A.C.™/T.R.A.C.™ pad 21

Sinus tracts 29

- choice of foam dressing 22

Small wounds

- dressing technique 34
- therapy settings 20

Spinal cord injury 14

Splinting effect 20, 46

Standard precautions 6, 13, 24

Sternal wounds 20, 46

Superficial wounds, choice of foam dressing 22

Suture

- for flaps 55
- retention 45

T

Tendons, exposed 11, 43

Therapeutic pause 38

Traumatic wounds 7, 43, 44

Tunneling

- application technique 29
- choice of foam dressing 22
- therapy settings 20

U

Undermining 30

- choice of foam dressing 22
- therapy settings 20

Unstable body structures 14, 46

- therapy settings 20

V

V.A.C. ATS® System 17

V.A.C. Freedom® System 17

V.A.C. Simplicity™ Therapy System 17

V.A.C.® Therapy monitoring 37

V.A.C.Ultra™ Therapy System 18

Vacuum Assisted Closure®, introduction 5

V.A.C.Via™ Therapy System 18

Vagus nerve 14

Venous insufficiency ulcers 52

VLU. See Venous insufficiency ulcers

W

Warnings 9

Wound deterioration 39

Wound edge reapproximation 33

Wound healing 5

- effects of negative pressure 5

Wound odors 41

Wound size, minimal changes 38

Wound specific information 43

Wound undermining 30

Y

Y-connector 21, 67

- changing 27

- techniques 27

1-800-275-4524

www.kci1.com



Cover contains 10% PCW (Post Consumer Waste)
Printed with Soy inks



3M™ and Cavilon™ are trademarks of 3M™ Company. Unless otherwise specifically noted in the text, all other trademarks designated herein are proprietary to KCI Licensing, Inc., its affiliates and / or licensors. ©2015 KCI Licensing, Inc. All rights reserved.

2-B-128 Rev H 11/2015