Standard skin & dressing management at the Central Venous Access Device (CVAD) Site

PREVENTION

AIM: clean, dry, intact, comfortable, cost-effective dressing that provides catheter or TIVAD needle securement.

KEY PRACTICES

- **Assess and document dressing:** at least once per shift, and each outpatient, clinic or home visit
- **IV administration lines:** ensure IV lines are secured to patient to prevent pull on the dressing
- **Replace dressing every 7 days:** or earlier if it contains ooze, moisture or is not intact

PATIENT FACTORS

- **Educate patient** to look at dressing each day, to notify nurse of discomfort, burning, or itch of skin under dressing
- **Encourage hydration and balanced diet:** important elements for skin health
- **Hair under dressing:** clip if required to assist with dressing adherence to skin

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Types of CVADs

- **CICC:** centrally inserted central catheter
- **tc-CICC:** tunnelled cuffed CICC (central venous catheter)
- **PICC:** peripherally inserted central catheter
- **TIVAD:** totally implantable venous access device (portacath)
- **Apheresis catheters**

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STANDARD CARE

KEY PRACTICE POINTS

SKIN ANTISEPSIS

- ✓ **2% CHG in 70% IPA swab sticks**
  - e.g. Chloraprep® (sterile applicator), 3M™ Soluprep™ SwabStick, Reynard Foam Swab Stick®
- ✓ **Prolonged skin antisepsis**
  - CHG disc e.g. Biopatch® OR
  - CHG gel dressing 3M™ Tegaderm™ CHG Dressing
- ✓ **Tissue adhesive at catheter exit site**
  - (bacteriostatic, haemostatic) e.g. SecurePortIV®
- ✓ **Alternatives: silver or PMHB discs**
  - e.g. Acticoat™ Site, Kendall™ AMD Antimicrobial Foam Discs

CRITICAL PRACTICE POINT
Allow skin to completely air dry before applying any dressing materials

DRESSING MATERIAL

- ✓ **Application:** do not stretch or apply with tension, ensure borders adhere to the skin
- ✓ **Use sterile TSM:** consider next generation fabric bordered dressings
  - **Bordered TSM with integrated securement** e.g. SorbaView Shield® Dressing
  - **Bordered TSM** e.g. 3M™ Tegaderm™ I.V. Advanced Securement Dressing

CRITICAL PRACTICE POINT
Use low and slow, controlled removal technique while supporting skin to prevent skin damage related to acrylic adhesives*

* *Acrylic adhesive*: strong dressing adhesive that increases risk of skin damage during removal

SKIN PROTECTION

- ✓ **Use alcohol-free skin barrier film** under dressing materials (not under CHG gel or disc) e.g. Cavilon™ No Sting Barrier Film
  - Preventatively for any patients with *risk factors for skin impairment* **
  - For diaphoretic patients for dressing adhesion

CRITICAL PRACTICE POINT
Allow skin to completely air dry before applying any dressing materials

SECUREMENT

- ✓ **Use engineered securement devices (ESD)**
  - **Adhesive ESD** e.g. StatLock®, GripLoc®, bordered TSM with silicone adhesive ESD e.g. 3M™ PICC-CVC CHG Securement Dressing
  - **Subcutaneous ESD:** no adhesives for use with impaired skin e.g SecurAcath™
- ✓ **Tissue adhesive** applied to catheter exit site (haemostatic, bacteriostatic, securement) and potentially under catheter e.g. SecurePortIV®

CRITICAL PRACTICE POINT
All external catheters are secured at all times ideally within 1-2cm of exit site

Continue with standard care ← **NO** ← **SKIN CHANGES** → **YES**

** RISK FACTORS FOR SKIN IMPAIRMENT

- **Age** >50 years, neonates, premature infants
- **Number & type of comorbidities:** infection, diabetes, renal failure, malignancy, skin conditions e.g. eczema
- **Medication:** anticancer agents e.g. metabolites (e.g. fluorouracil, capecitabine), taxanes (e.g paclitaxel); angiogenesis inhibitors (e.g. bevacizumab); epidermal growth factor inhibitors (e.g. cetuximab); long-term corticosteroids
- **Radiation therapy**
- **Immunosuppression**
- **Malnutrition & dehydration**

ABBREVIATIONS

CHG - chlorhexidine
ESD – engineered securement device (for catheter securement)
IPA - isopropyl alcohol
IV – intravenous
NaCl – sodium chloride
NC – needleless connector
PHMB – polyhexamethylene biguanide
TSM – transparent semipermeable membrane

ASSESSMENT

COMPLETE HOLISTIC PATIENT ASSESSMENT INCLUDING:

- Patient diagnosis
- Comorbidities
- Prescribed and other treatments
- Allergies and sensitivities
- Existing skin conditions
- Cognitive performance

Consult vascular access or wound care specialist nurse if required

Skin changes can be categorised as **infection**, **dermatitis** or **mechanical injury** related

LOCAL SKIN INFECTION

Signs / Symptoms

- Red, blanched, mottled, warmth, discomfort, oedema, pustules, exudate, odour, induration

Assessment

- Is the patient neutropenic?
- Is the dressing clean, dry and intact?
- Is the skin broken? Evidence of skin impairment?
- What is the amount and type of exudate present?

Key Points

- ✓ Discuss assessment with treating medical team
- ✓ As per orders – skin culture of exit site, systemic antibiotics, potential CVAD removal
- ✓ Continue regular observation, patient assessment and documentation

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CONTACT DERMATITIS

- irritant, allergic, moisture-associated

Signs / Symptoms

- Redness, burning, pain, itch, shiny, scales, vesicles, exudate (blood, serous), maceration (moisture-associated)

Assessment

- Is it associated with infiltration or extravasation?
- Is the area the same size & shape of dressing material or adhesive ESD?
- What are suspected cause/s – solutions, dressing materials, adhesives?
- What is the amount and type of exudate present?
- Is the skin broken?

Key Points

- Discuss assessment with the vascular access or wound care specialist nurse if required

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MECHANICAL INJURY

Signs / Symptoms

- Initial skin injury from insertion (bleeding exit site), skin stripping, tears, tension blisters, pressure injury, bruising

Assessment

- What caused the injury?
- Skin tear: can the skin edges be gently moved together?
- Was the pressure injury caused by a bandage, tubing, needleless connector?

Key Points

- Avoid the mechanism of injury
- Protect skin from catheter hubs or NC with cushioning dressing materials, avoid tight tubing material over dressing

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PROMPT INTERVENTION: Do not wait until the next dressing change is due

Management of CVAD-associated skin impairment (CASI)

SKIN CHANGES

- NO → **Continue with standard care**
- YES

LOCAL SKIN INFECTION	CONTACT DERMATITIS	MECHANICAL INJURY

SKIN ANTISEPSIS ALTERNATIVES

LOCAL SKIN INFECTION

- ✓ **Remove exudate** with sterile NaCl
- ✓ Continue with **2% CHG in 70% IPA** swab sticks
- ✓ **Ensure correct application** of CHG disc (blue side up, 360° coverage around catheter at the exit site), gel pad covering exit site

CRITICAL PRACTICE POINT
Allow skin to completely air dry before applying any dressing materials

CONTACT DERMATITIS

Identify and replace suspected irritant/s – may be a combination including:

- ✓ **CHG:** skin patch test*** with reduced CHG concentration (0.5%) or
- ✓ **Alcohol:** change to aqueous CHG
- ✓ **CHG sensitivity:** skin patch test*** with povidone-iodine 10%
- ✓ **Broken skin:** use aqueous CHG (avoid pain caused by alcohol on broken skin)
- ✓ **Use sterile NaCl:** for severe skin impairment – allow for greater drying time

*** **Skin patch test**
Apply material or solution to skin (e.g. forearm)
Monitor for short period (30-60 mins)
Monitor over next 2-3 days
Observe for signs, ask patient re symptoms of irritation

MECHANICAL INJURY

- ✓ Continue to use 2% CHG in 70% IPA swab sticks if skin is intact
- ✓ Consider temporary reduction to CHG 0.5% in 70% IPA or aqueous until skin is healed
- ✓ If severe use **sterile NaCl** for maintenance procedures – allow for greater drying time

CRITICAL PRACTICE POINT
Allow greater drying time for NaCl & povidone-iodine solutions

DRESSING MATERIAL ALTERNATIVES

LOCAL SKIN INFECTION

- ✓ **CHG gel bordered TSM:** allows observation of exit site
- ✓ **Antimicrobial disc:** add to dressing management if not currently used e.g. CHG (Biopatch® or gel dressing 3M™ Tegaderm™ CHG Dressing), silver (Acticoat™ Site) or PHMB discs (Kendall™ AMD Antimicrobial Foam Discs)
- ✓ **For exudate: use absorbent dressing material and attempt to keep separate from exit site** e.g. Mepilex® Border, Mepilex Lite®, Biatain® Non-adhesive dressings

CONTACT DERMATITIS

- ✓ Identify and replace suspected irritant/s: may be more than one agent
- ✓ **Use NaCl or alcohol-free adhesive removal products** (e.g. wipes, sprays, pads) to remove dressing. Cleanse skin with sterile NaCl to remove product from skin before applying skin antisepsis
- ✓ **For exudate:** use absorbent dressing material and attempt to keep separate from exit site e.g. Mepilex® Border, Mepilex Lite®, Biatain® Non-adhesive dressings
- ✓ **Consider changing TSM brand** e.g. IV3000™, Opsite Flexigrid™, SorbaView Shield® Dressing, 3M™ Tegaderm™ I.V. Advanced Securement Dressing
- ✓ **Ensure impaired skin is protected and completely covered**
- ✓ **Slightly** move dressing materials to avoid applying adhesive to same skin area every dressing

MECHANICAL INJURY

- ✓ Continue to use 2% CHG in 70% IPA swab sticks if skin is intact
- ✓ Consider temporary reduction to **CHG 0.5%** in 70% IPA or aqueous until skin is healed
- ✓ If severe use sterile NaCl for maintenance procedures – allow for greater drying time

CRITICAL PRACTICE POINT
Minimise skin damage with dressing removal technique. Use low and slow technique (for bordered dressings), or lateral stretch technique for flat dressings while supporting the skin (IV3000™)

SKIN PROTECTION ALTERNATIVES

LOCAL SKIN INFECTION

- ✓ Avoid use of hydrocolloid materials****
- ✓ **Unbroken skin:** use alcohol-free skin barrier film e.g. Cavilon™ No Sting Barrier Film
- ✓ **Broken skin:** use alcohol-free skin barrier film designed for broken skin e.g. 3M™ Cavilon™ Advanced Skin Protectant
- ✓ **Use** silicone adhesive materials***** for protection: over impaired skin to protect from TSM, adhesive ESD

Main types of adhesives used for dressing materials:
1. * Acrylic adhesive: strong adhesive for dressing adherence; greater risk of skin damage during removal so slow and low, controlled removal technique is required possibly with additional adhesive remover wipes
2. **** Hydrocolloid: avoid due to moisture content under dressing
3. ***** Silicone adhesive: gentle adhesive; can be applied over impaired skin; some materials have absorbent properties to wick away excess moisture; gentle on impaired skin for removal

CONTACT DERMATITIS

- ✓ **If skin is intact:** continue to use skin barrier film
- ✓ **If skin is broken:** apply
  - **silicone adhesive material** as protective layer between skin and TSM adhesive e.g. Mepilex® Border, Mepilex Lite®, Biatain®) Non-adhesive dressing
  - **skin barrier film designed** for broken skin e.g. 3M™ Cavilon™ Advanced Skin Protectant
- ✓ **Severe cases:** place silicone adhesive dressing material over broken skin and situate all dressing materials on top (see example below)
- ✓ **Skin with high moisture content** or ooze: consider using silicone adhesive material with absorbent properties
  e.g Mepilex Border™ or Biatain® Silicone dressing

MECHANICAL INJURY

- ✓ **If skin intact:** continue to use skin barrier film and ensure skin is completely air dry before dressing application
- ✓ **If skin is broken:** apply silicone material (protection layer between skin and TSM adhesive)
- ✓ **Severe cases:** use silicone adhesive dressing material on the skin and place all dressing materials on top
- ✓ **Skin with high moisture content** or ooze: consider using silicone adhesive material with absorbent properties
- ✓ **Broken skin:** cover with silicone dressing material

CRITICAL PRACTICE POINT
Allow skin to completely air dry before applying any dressing materials

SECUREMENT ALTERNATIVES

LOCAL SKIN INFECTION

- ✓ **Adhesive ESD:** ensure it is not over or adjacent to catheter exit site for monitoring
- ✓ **Use a subcutaneous ESD:** advantage is there is no adhesive involved, can place silicone adhesive material underneath if needed

CONTACT DERMATITIS

- ✓ Move adhesive ESD to **different area of skin** to avoid skin impairment
- ✓ Place **silicone adhesive** material between skin and adhesive or subcutaneous ESD
- ✓ Use **subcutaneous** ESD

MECHANICAL INJURY

- ✓ **Alternative:** bordered dressing that includes ESD with silicone adhesive
- ✓ **Move adhesive ESD** to avoid injured skin
- ✓ **Use a subcutaneous ESD**, can place silicone adhesive dressing underneath if required

CONTINUE TO *ASSESS* EVERY DRESSING. *DOCUMENT* ALL ASSESSMENTS, PROCEDURES & INTERVENTIONS

INTERVENTION

EXAMPLE

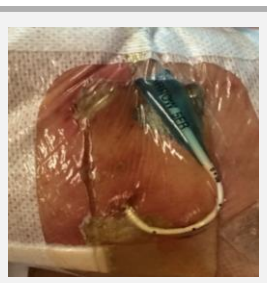

Figure 1: Erosive contact dermatitis

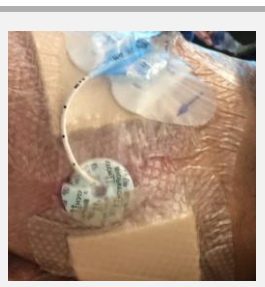

Figure 2:Impaired skin protected with silicone adhesive dressing with adhesive ESD on top, and completely covered with TSM

Figure 3: One week later

Photo permissions: K Curtis

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