

Approaches to managing wounds



Option 4. 1- *Discuss the approach to managing wounds that are classified as either healable, maintenance or non-healable. Comment on how local wound care approaches differ for each of these classifications.*

Managing healable wounds

Once the wound is diagnosed as healable, the IHT (Interprofessional Healthcare Team) can treat it accordingly. Healable wounds have adequate blood supply. An ABPI test can confirm blood supply to the extremities as well as palpation of the pulse sites. Next, the cause of the wound should be corrected. If the IHT can pinpoint the cause, healability of the wound can theoretically be fast-tracked. Venous ulcers tend to heal faster with the help of compression therapy. To establish eligibility for compression, an ABPI of 0.8 or higher is required. If the vasculature is mixed, then a modified compression treatment could be used if the ABPI is between 0.65 and 0.8. The healthcare team should proceed cautiously if the ABPI is between 0.5 and 0.65. 1

If the wound is arterial, the IHT would want to consider revascularization. Vascular studies should be performed by a vascular specialist which gives a more in-depth look at a patient's vasculature as compared to an ABPI. If the arterial blood flow is compromised, the vascular surgeon might choose to do angioplasty, stent or bypass surgery.

If the patient has pressure ulcers, the IHT should consider pressure redistribution to reduce friction, pressure and shearing forces. 1

Appropriate moisture management dressings need to be considered for patients who are incontinent. 1

Sibbald et al's mnemonic VIPS (confirm adequate Vasculature supply; Infection treatment; plantar pressure redistribution according to local provisions; and Sharp surgical serial debridement) can be used for managing diabetic foot ulcers. 1

Local wound care for healable wounds

The local wound care components of healable wounds are debridement, inflammation/infection and moisture balance. (2) Debridement will help remove any necrotic or non-viable tissue in order to let the viable blood-fed tissue flourish. Controlling the inflammation or infection with topical or systemic therapies helps to stave off invading bacteria. Controlling moisture of a wound ensures that the peri-epidermis or viable granulating tissue of the wound won't be affected by maceration which could cause the wound to grow.

Managing maintenance wounds

A maintenance wound is a wound that may be healable, but either healthcare system factors or patient-related issues are preventing the wound from healing. 1 These wounds can be frustrating to the HCP (Health Care Practitioner) because they can look and act like a healable wound but something is preventing it from healing in a predictive healable time frame. The delay may be wholly on the patient due to non-compliance or due to affordability of devices needed for therapy. At any time (and with positive reinforcement) the patient may change their mind about the treatment or there may be changes allowed by the healthcare system to afford devices needed for treatment. The wound may need surgical intervention to clear

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away non-viable tissue. Diagnostic testing may be necessary to find or rule out systemic abnormalities. Pain may be a barrier to treatment for maintenance wounds. If pain can be reduced, patient may be more apt to compliance of treatment. The IHT may want to reassure the patient that they are doing everything they can to help them get closer to healing the wound. If the patient knows and feels that they are being cared for appropriately, they will put more trust in their IHT.

Local wound care for maintenance wounds

Pain may be managed through uses of oral or topical treatments. Patients may find relief if they take ibuprofen or acetaminophen prior to dressing changes. A topical lidocaine gel or cream may be necessary before treatment. If moisture balance is needed, alginates or high absorbency products may be beneficial until the drainage is controlled. A silver or PHMB product may help to get bacteria under control. If there is a buildup of slough or non-viable tissue, conservative or surgical debridement may be necessary and avoid bleeding. 2 Alginate would help to control bleeding, if any, after debridement. With some stalled wounds, there could be irritation of the nerves surrounding the wound which could be very painful. There are some foams available with ibuprofen or creams or ointments containing a mild steroid may ease the pain.

Managing non-healable wounds

A non-healable wound is a wound that does not have adequate blood supply to support healing or the cause cannot be corrected. 1 The cause of the wound cannot be treated due to exasperating factors. 1 An arterial ulcer

may not heal due to complications that would prevent angioplasty, stent or bypass surgeries. Venous leg ulcer may persist due to poor or compromised vasculature where compression therapy is contraindicated due to an ABPI score lower than 0.5. Pressure ulcers may not heal due to complete lack of movement. Diabetic foot ulcers may be caused by extreme infections like osteomyelitis and the only choice forward is amputation. The patient's quality of life should be the first consideration after determining that the wound is not going to heal. The IHT should consider pain management, if any, and then deal with the symptoms as they arise. Patients with non-healing wounds are usually older adults or people requiring end-of-life care.

Local wound care for non-healable wounds

Povidone iodine or Dakin's solution may be used to help control bioburden or odor of a non-healable wound. (1) If drainage is a problem, a HCP can use absorptive to super absorptive foams or materials that are similar to diaper technology. According to Sibbald et al., (1) conservative debridement of slough or non-viable tissue is recommended for non-healable wounds. If pain is an issue, then an MD may want to look at controlling the pain with medication topically or systemically.

Question 4. 2 (i) *How can you distinguish superficial critical colonization from deep and surrounding infection? Include in your discussion the use of infrared thermometry.*

To distinguish between a superficial critical colonized wound and deep surrounding infection, I would start by working through the mnemonics created by Sibbald et al. 3 4 The mnemonics are NERDS (Non-healing, <https://assignbuster.com/approaches-to-managing-wounds/>

increased Exudate, Red and or friable granulation tissue, necrotic Debris and or Smell) and STONEES (increased Size of wound, increased Temperature, Os (probes to bone), New areas of breakdown, Erythema/edema, increased exudate and Smell). Three or more symptoms of either mnemonic would tell a HCP if a wound is superficial critically colonized or systemically compromised by a deep surrounding infection.

Every wound has a history. I would ask the patient how long they have had the wound and how it happened. If the wound has been around for a couple of months and hasn't changed in size, this could be the start of NERDS. If the wound increases in size, no matter the time frame, then it may be a STONEES wound. Increase of exudate and smell are a factor in both mnemonics although you may see more exudate in a systemic infection as indicated by the STONEES mnemonic. The difference can be distinguished by looking at the wound bed and surrounding tissue. If the granulating tissue is angry red and friable we can point towards NERDS but if there is a change in depth and the HCP can probe to bone or there is breakdown of surrounding tissue, we look more toward STONEES. A temperature change of the surrounding wound tissue is a better indicator that the problem is systemic. Sibbald et al. found that "...temperature elevation of 3°F or greater indicated a potential deep or surrounding infection and a case for further investigation." (4) and also, " Wounds with elevated temperature were eight times more likely to be associated with heavy bacteria growth." (3) Infrared thermometers are the most appropriate tool to check temperature because they do not have to make contact with the skin which could lead to further contamination or colonization of the wound.

Question 4. 2 (ii) *Comment on three (3) applications for infrared thermometry, other than deep and surrounding infection.*

The three applications for infrared thermometry other than periwound deep and surrounding infection are temperature differential of opposing limbs for patients with neuropathy; temperature changes surrounding charcot feet; and localized skin temperature changes.

HIT (Handheld infrared thermometers) can help detect lower temperatures of limb ischemia. By mapping out different temperatures along the peripheral vasculature, a HCP could get a good sense of where the ischemia is. (4) A good use of the HIT is to compare temperatures of opposing limbs. An increase of more than 3°F could mean infection.

According to Sibbald et al, “ Detectable sensorimotor neuropathy develops in 40% to 50% of persons with diabetes within 10 years of diagnosis” 4
Peripheral neuropathy can be problematic because it is very easy to incur repetitive foot injuries due to the lack of sensation. When there is trauma, the infrared thermometer can detect higher temperatures that could mean infection but with early detection, the patient could have the area assessed and avoid complications associated with infection.

People with Charcot foot are not exclusively diabetic but may have developed the problem due to trauma or other systemic diseases. People with neurotrophic feet have a high chance of being affected by Charcot joint. Charcot joint occurs due to an inflammatory process caused by repetitive trauma. Once the inflammation decreases, the bones heal unnaturally resulting in the Charcot joint. To detect Charcot joint problems,

you could use the infrared thermometer to detect localized differing temperatures of the intact skin. The temperature can range from 4°F to 15°F or more. According to Sibbald et al., 4 “ A local temperature increase is most likely inflammatory (eg. ...Charcot joint)...” 4

Localized skin temperature changes could mean deep inflammation issues like Charcot joint or it could mean that there is unequal vasculature supply when comparing similar locations on opposing limbs. An ABPI could differentiate vasculature from inflammation.

Question 4. 3 Critically appraise the evidence on cleansing and debridement of chronic wounds. Relate how the evidence in these articles may or may not impact your clinical practice.

In the article by Goodman et al. (5), it was deduced that there wasn't much difference when using tap water versus normal saline. I can see the cost savings argument because in my clinic, we use normal saline 99.9% of the time. In my 8 years at Acclaim Health, I think that there might have been 2 patients that reacted badly to saline and then we used sterile water. I can honestly say that we are generally steered away from using tap water for wound cleaning due to E-coli incidents in communities like Walkerton, Ontario (7). I think that governing healthcare bodies need to take responsibility here and re-examine best practice when it comes to solutions used for wound cleaning. According to Weis et al. (8), a 500 ml bottle of normal saline costs the hospital \$0.75 (US) but the patient is charged \$10 (US). In Ontario, OHIP (Ontario Health Insurance Program) usually pays the majority of medical bills but the tax system is being 'taxed' by unnecessary

costs like overpriced bottles of normal saline. Initially, a water filtration system might be expensive but more cost effective in the long run.

I have seen first-hand how debridement can improve the healing of a wound. I saw a patient who had eschar debris buildup (about 12 cm x 7 cm and about 2 cm thick) on the top of his left foot. This ‘chunk’ had been on his foot for a few weeks. He had no complaints of pain, no redness, no swelling and no underlying diagnosis that would put him in peril if the piece were removed. It was attached to the skin, but I couldn’t see how. I used a few 10 cc normal saline syringes and soaked around the attachment area. I packed some hydrogel around the attachment site and let it sit for a few minutes. I used a cotton swab and gently moved the gel around and the piece started to loosen. With a little more gentle persuasion, the piece came off and there was no open ulceration! The patient had no pain during the process and he was very relieved that he had no more wound. He had dealt with this for weeks but it wasn’t budging. I am a firm believer that debridement of necrotic tissue is necessary for optimal wound healing. I am very sensitive to patients who I see with dressings that are dried to their wounds. To me, mechanical debridement should be considered a form of torture. Yes, it might be pulling away useless tissue and debris but it’s also going to tear away viable tissue too causing more trauma to the patient and delaying healing.

Sharp debridement does have benefits because there are some wounds that will resist autolytic means or shouldn’t have autolytic treatment due to excessive moisture (eg. Plantar surface Diabetic foot ulcer that drains moderately). Callous buildup can cause more pressure around a plantar

wound and possibly causing more trauma. By sharply debriding the callous, we remove the pressure agent and the wound has a better chance of healing. I get the idea that callouses can cause more harm around a wound but I find that callouses don't tend to stay away for long. It would be nice if someone figured out how to prevent them altogether. The problem with sharply debriding callous is that a nick of the blade could be a catalyst to infection.

The idea of hydrosurgery sounds interesting but as Ayello et al. (6) stated, “The investigators expressed a concern regarding microbial load in the air that was significantly increased during and one hour after hydrosurgery ($p < 0.05$) indicating a risk of contaminating.” (6) A problem with hydrosurgery would be cost and facility. The equipment would have to be maintained pristinely as well as the procedure room to prevent contamination.

Radio Frequency ablation is an interesting alternative to hydrosurgery. It's cleaner in terms of reducing the bacterial counts (6) after treatment but cost and time might hinder the ease of use of this equipment. This is probably something that is utilized by medical doctors in an operating room setting. Patients may have to wait a while for a 5 minute procedure.

I have never had the opportunity to see or use maggots for biological debridement. I have heard of nurses that have accidentally come across patients that harvested their own maggots but I have never seen maggots used in a controlled setting. I have heard that in a controlled environment, maggots can do a great job of cleaning up slough but if pain is a factor,

maggots might be too aggressive for treatment. Also, I get the feeling that the disgust factor of maggots might have a negative impact.

Question 4. 4 (i) *How would you conduct a comprehensive assessment of wound associated pain?*

Pain is what the patient says it is. The previous statement was drilled into me in nursing school.

When I see a patient for the first time with a painful wound, I like to hear their story on how the wound happened. I find that people tend to lend more trust to a HCP when they are given the time to tell their story. If a patient tells me that their wound is very painful, I like to put them at ease and tell them that we will do our best to not hurt them and we will be as gentle as possible. At this point, you can almost feel their tension decrease, almost like half-deflating a balloon. By gaining trust with the patient, I can proceed. It's hard to work with a patient who doesn't trust what I'm doing. I would start using a pain scale of 0 to 10 where 0 is no pain and 10 is the worst pain they have ever felt. For children or people who cannot talk, I would use a pain scale that showed faces ranging from a happy face to a sad face with tears. The happy face would represent no pain while the sad face with tears would represent extreme pain. I would ask if anything made the pain worse, like walking, sitting, standing, touch, etc. I would ask if the pain had any particular characteristics like stabbing, burning, dull, aching or throbbing. Sometimes, people will answer with a combination of characteristics. I would ask if the pain was localized or if it radiates. (I sometimes have to use my hands for this part to explain for some people who don't speak English too

well. Hands together for localized and hands apart for radiating.) I would ask about the timing of the pain whether it is present constantly, sometimes or during exasperation. Patients sometimes find that certain positions or movements ease the pain, so I would ask them about relieving movements or positions. Finally, I would ask if they are taking any analgesics for pain relief, either prescribed opioids or NSAIDS or non-prescribed medications like acetaminophen or ibuprofen.

When I start the wound care, I make sure to pay attention to the patient's body language. When they aren't talking their bodies speak volumes! Once I've gently removed the dressing, I can see the issues and begin to think about what products to use that will help or hinder. One pain reliever that usually works well is lidocaine jelly 2%. It takes about 10 minutes to numb but patients are very appreciative that it worked at all.

Question 4. 4 (ii) *Discuss different types of pain management strategies (including pharmacological and non-pharmacological) and include potential barriers to achieve optimal pain management.*

When it comes to pain relief, a lot of people have the phobia that if they take an opioid, they will be addicted. According to Woo et al. (9), there are eight strategies to help patients manage pain.

Education. People are afraid of opioids because they are constantly hearing about addiction through the media or they know someone who has an addiction. It is true that some people abuse opioid use due to a physical injury and there are addiction counseling centers available for them but they are a very small part of the population. People need to know that taking an

opioid doesn't necessarily mean that they will be an addict. By teaching patients how their pain works, we can help them understand how the medication will affect the pain and how the use of the opioid is usually very short term. They may ask about long term use so their family doctor can refer their questions to a pain clinic that specializes in pain treatment.

Pharmacological: There are two types of options for pharmacological management of pain. The first is the use of topical pain relievers like lidocaine jelly, ibuprofen or morphine (9). The second type of pharmacological pain management is systemic relief using medications like nociceptive pain relievers (eg. Acetaminophen, ibuprofen, ASA and NSAIDS (9)) for mild to moderate pain and opioids for moderate to intense pain. (9)

Local wound care: I would try to figure out what irritates the wound or surrounding tissue (9). I would look for products that would be gentle on the skin like silicone bordered bandages. Sometimes a skin barrier product needs to be applied before the bandage to alleviate irritation caused by the bandage adhesive. When adhesives are not appropriate, I may have to resort to wrapping the non-adhesive foam that's covering the wound with kling gauze.

Physical therapies: Pain may be relieved by compressing with ice or heat, depending on the type of injury. Some muscle pain may dissipate with massage while exercise could help with blood flow to the affected area.

Anxiety reduction: When a patient is anxious about pain, they might try various relaxation techniques like deep breathing; imagining being somewhere else calm and relaxing; self-hypnosis, which would be a

combination of breathing and imagery; distraction by a book or smart phone; music; or for long term help such as support groups. I sometimes joke that people with similar wounds should start a support group but it could probably be very successful.

Cognitive therapy: The patient could be helped to down-grade the pain level by altering their perception of the pain. This could be coupled with distractions and imagery. Patients can also try problem solving and positive thinking to down play the impending pain. (9)

Therapeutic alliance: To ease anxiety about the pain, the HCP could work with the patient to set up a routine or schedule of what is to be done and how it is to be done. They could set up goals of how much is debrided on each visit. Establishing a trusting relationship is probably a key component in alleviating anxiety.

Empowerment: Patients need to know that they have the right to say ‘ no’ or ‘ stop’. It should be established before treatment that the patient can halt the treatment whenever they need it to be stopped. If pain is bad enough for the patient to stop the procedure, then their decision should be validated and respected.

Question 4. 5 (i) *Discuss what factors you would consider when selecting a patient for treatment with advanced modalities.*

The factors to consider when selecting a patient for treatment with advanced modalities are physical, mental and/or medical conditions.

Aside from clinical evidence, the patient's current physical, mental and medical state is important. According to Houghton et al, it's important to identify any underlying causes of the wound and any medical conditions that might be conflicting to healing. 11 An ulcer on a lower leg might turn out to be cancerous until tested properly. A mentally ill patient may not keep on a vac dressing because they believe it is harmful. Electrical stimulation may not be ideal for someone who has a seizure disorder or in areas of malignant cells. It is important to gather a true full health history. I have encountered patients that felt the sharing of their health history was unnecessary. I had to help them understand that their medications could impact the treatment or past health problems could explain what is happening now.

There are numerous therapies and treatments that claim healing and pain reduction but without the testing and trials of outside experts, the statements are not valid until proven. The treatment might be the best in the world but won't help your patient in Mississauga, Ontario, Canada if the treatment is only offered in Perth, Australia. Accessibility has to be considered. My company works with two different LHINs (Local Health Integration Networks). We can get vac therapy in both LHINs but they are different machines and different equipment. If one treatment sounds promising, we have to jump through so many hoops that the patient might be healed by the time it has been allowed.

Question 4. 5 (ii) *Choose one modality from the list below and expand on appropriate clinical application (indications for use, contraindications, specific wound type etc.):*

- *Negative Pressure Wound Therapy (NPWT)*
- *Electrical Stimulation*
- *Hyperbaric Oxygen Therapy*
- *Ultrasound*
- *Ultraviolet Light.*

Electrical Stimulation:

Indications for use: Electrical stimulation promotes “...re-epithelialization and angiogenic phases of wound healing.” 11 Fibroblast activity is stimulated which enhances protein synthesis and the strength of collagen.

11 Electrical stimulation improves local blood flow and enhances perfusion of affected tissues. (11) Reduces bacterial bioburden. (11) Electrical stimulation could be used for diabetic foot ulcers, surgical wounds, pressure wounds, venous and arterial leg ulcers, skin tears and burns.

Contraindications:

- Person(s) with malignancies near treatment area. Electrical stimulation may cause tumor growth and spread of malignant cells.
- “ Desiccated wounds and petroleum based dressings should be avoided”. 11
- Electrical stimulation should not be used with metallic dressings like silver alginate or povidone iodine. 12
- It is contraindicated for use near electrical implants or reflex centers laryngeal muscles or phrenic nerve. 12
- Untreated osteomyelitis or immature bone 12
- pregnancy 12

- inflammatory ulcers 12
- near a DVT thrombophlebitis 12
- severe arterial deficiency 12
- near reproductive organs 12
- hemophiliacs 12
- tuberculosis 12

Specific wound type: Electrical stimulation could be used for diabetic foot ulcers, surgical wounds, pressure wounds, venous and arterial leg ulcers, skin tears and burns.

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