

# Living with your Diabetic Foot Ulcer



A GUIDE FOR YOU AND YOUR CAREGIVER

# Please check off when you have read the content

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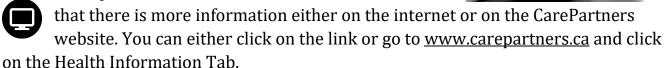
### Introduction

Welcome to the CarePartners Wound Care Team! In the pages of this booklet we will tell you about how we can help you to help your wound.

This booklet is available in paper copy or on line at www.carepartners.ca It is full of information to help you to understand what is going on with your body when you have a wound and what your body needs to heal the wound or, if it can't heal, to feel better.

Sometimes we have to use medical terms, so words in *italics and underlined* will be defined in the glossary at the end of the booklet.

Some information will have web links or a picture of a computer beside it like this. This means





A wound is any break in your skin. Sometimes wounds are called ulcers. The two words mean the same thing. There are many causes of wounds. Sometimes they are hard to heal. Your nurse or doctor will help you to know the type and cause of your wound and why it is having trouble healing. Treatment may include helping you to improve your nutrition, increasing your mobility and activity, removing sources of pressure or friction, addressing specific conditions such as diabetes, improving your blood flow and helping you to reduce the risk of you getting an infection or treating the infection if one is present.

To help your wound heal you may need to change some of your activities and habits.

If you smoke, you will need to consider quitting or if you have diabetes you will need to really follow your diet and monitor your blood sugars. More about that later.

### What Is Wound Care?

Wound care includes all the activities of managing your wound including what you and your nurse will do to help your wound heal. The nurse will assess you and your wound to determine if your body is ready to heal and will apply dressings to support your wound. Your nurse may need to take pictures of your wound. They will ask you to consent to this.

Wound care also includes teaching you to be as independent as possible with your wound care.

At each visit your nurse will assess your wound to see how it is doing. Different kinds of wounds need different kinds of treatments and dressings. These may change over time. Your nurse may need to contact your doctor or other health professionals to discuss your wound or to get you a special referral if needed.

Sometimes your body is ready for healing and your wound needs minimal support. This is called a *healable wound*.

Sometimes your body needs specific things to heal your wound like special medication or devices. This is called a *maintenance wound* and in this case your nurse will discuss with you what needs to change or what you need to do to help your wound to heal.

Sometimes your body is unable to heal your wound. This is called a <u>non-healable</u> wound. In this case your nurse will help you to learn how to manage the symptoms you are experiencing to ensure that you are more comfortable and to reduce the risk of infection.



# I have a Diabetic Foot Ulcer. What is that?

Your doctor or nurse has determined that the wound on your foot is a diabetic foot ulcer which is also known as a DFU. This is a wound that has difficulty healing due to diabetes.

# How did I get this DFU?

A DFU is usually caused by trauma related to tight fitting shoes or an injury that you didn't feel.

### **Neuropathy**

People with diabetes may have damage to their nerves. This leads to trouble in three areas:

- 1. Your ability to feel pain in your hands and feet may have decreased. This is called "loss of protective sensation" because if you don't feel pain you cannot avoid the activity that is hurting you. Health professionals call this <u>Sensory Neuropathy</u>.
  - Your nurse will have performed a test called a Monofilament Test where they test the sensation in your feet with a small filament like a piece of fishing line. The nurse will have recorded the areas of your feet that have decreased sensation. If this was not done, ask your nurse about it.
- 2. You may have decreased or absent ability to sweat on your feet and legs leaving them very dry and your heels may get hard and cracked. This is called *Autonomic Neuropathy*. If you have cracks in your heels your risk of infection increases as germs can get in to your body through the cracks.
- 3. The bones in your feet can become brittle. This is called <u>Motor Neuropathy</u>. This means that you can actually break a bone in your foot and not know it because you didn't feel it. This causes your feet to change shape and to possibly not fit into your shoes anymore. You can also develop a loosening of the tendons that hold up the arch in your foot, making your foot flat and change shape. The changed areas can become pressure points leading to injury. You may hear this called a <u>Charcot foot</u>.

#### Circulation

People with diabetes may also have trouble with blood circulation and are at increased risk for infection.

The combination of nerve damage, increased risk for pressure and trauma to your feet, and poor circulation significantly increases your risk for a DFU.

 If you have adequate blood flow to your foot and toes, your chances of healing your wound improve and your risk for infection decreases,

- If you do not have adequate blood flow to your foot and toes, chances of healing are less, and your risk for infection is more,
- Your doctor may send you to a vascular surgeon to see if you need surgery to improve your blood flow or your doctor or nurse may perform tests called an Ankle Brachial Pressure Index and/or a Toe Brachial Pressure Index to determine the blood flow to your foot and or toes.

#### **Callus Formation**

You are at higher risk for calluses on your feet than people who don't have diabetes because of your neuropathies.

- A callus acts like a stone each time you put your foot down. But because you may
  not feel the pain, you don't stop stepping on the callus! In time the pressure from
  the hard callus causes a wound under it.
- The wound may appear to "pop" open, and you will see drainage, or the area may swell and become infected.
- You will need to have your doctor or nurse pare the calluses on your feet regularly to prevent wounds from forming underneath the callus. This is called *conservative sharps debridement*.

#### Trauma to the Foot

- When you have a DFU on the bottom of your foot, each step you take puts pressure on the area. This increases the damage and stops the healing. **You must not walk on your wound ever!**
- Even when your wound is healed you must never walk bare foot!
- Always wear shoes or slippers, even if just getting up to the bathroom at night. With loss of protective sensation, you can injure yourself without knowing it.
- Your doctor or nurse will help you to learn how to <u>offload</u> your DFU. This means that you will have shoes or devices that allow you to walk without putting any pressure on the wounded area.
- Talk to your nurse or doctor about offloading. Also ask them about <u>Total Contact Casting</u> (TCC) and if you are a candidate for TCC. Research shows that for some people, wounds will heal faster when they use it. In Ontario your LHIN will support you to have TCC if your doctor thinks it will help you.

# Things I can do to Help My Diabetic Foot Ulcer to Get Better

Complete this section with your nurse. Check off as many of the things you think you can try to do to help keep yourself healthy and heal your wound.

I will try these	✓
Manage My Blood Sugars:	
When my blood sugar is high I am more at risk of infection and poor healing. I will check and record my blood sugar times a day.	0
My diet impacts my blood sugars. I will follow my diabetic diet plan provided by my Diabetes Educator or Dietitian.	0
Exercise helps my circulation and helps control my blood sugars. I will discuss which exercises would be ok for me with my doctor or nurse or Diabetes Educator.	0
If ok with my doctor or nurse I will start a regular exercise program x week for min each day.	0
My medication helps control my blood sugar. I will take my medication as prescribed.	$\circ$
Take Care of My Feet:	
My DFU was caused by a trauma to my foot that I did not feel because I have damaged nerves (diabetic neuropathy). I must remove the pressure from my ulcer. I will talk to my doctor about how to remove the pressure from my feet and especially the ulcer area.	0
My feet are always at risk of new wounds. Each day I will wash and inspect my feet for wounds and dry well between my toes to prevent fungus.	$\circ$
My feet are dry because of my diabetes. Every day, after I wash my feet, I will apply appropriate moisturizers to my feet and heels, but not between my toes.	0

Nail care is really important to prevent wounds. I will cut my nails straight across, then file the edges smooth. (If I can't see my nails well I won't cut them myself).	0
I could get a burn on my feet because I can't feel if the water is too hot. I will always test hot water with my elbow and be careful with heating pads, heaters etc.	0
I could get frostbite without knowing it. I will protect my feet from cold and check them when I come inside.	0
Socks and Shoes:	
My shoes and slippers protect my feet. I will never go barefoot. (not even at night when I go to the bathroom)	0
If I get a cut it might bleed or drain. I will wear loose and light coloured socks (with no irritating seams) so that I can see blood right away.	0
Since I cannot feel my feet I won't know if something is in my shoe. I will check my shoes before putting them on for wear and tear or foreign objects.	0
I will be careful to buy the right size shoe. Since my feet swell I will buy my new shoes at the end of the day so I buy shoes big enough.	0
I will consider buying special orthopedic shoes if my foot shape has changed to help prevent a wound.	0
My doctor needs to see the shoes I normally wear. I will always take the shoes I normally wear to my doctor's appointments.	0

### But First ... Let's Check in!

Sometimes a list of tasks can seem easy to do and because of that we can easily overcommit. Take a look through the list and really think about the tasks you committed to. Ask yourself these questions;

- Do these activities fit with my day to day activities?
- Barriers are things that stand in the way of you being able to complete an objective. Can you think of any barriers that might prevent you from accomplishing the tasks you selected? An example might be *I do not have a safe place to walk*.

Some of the barriers that prevent me from doing these things are:

- How can I overcome these barriers?
- How confident am I that I can complete the tasks (0 is not confident at all and 10 is super confident)?

0 1 2 3 4 5 6 7 8 9 10

If your confidence score is less than 7, you might want to consider removing a ✓ mark or two. If your score is 7 or higher – give it a try!

After 2 weeks of trying to do these things reassess the list using the same process and if you feel confident enough, add a new task or two. Choose the tasks that are most important to you and you are most confident that you can complete.

Remember you do not need to accomplish this all on the first day - this is a journey!

## What do I need to Know about Wound Dressings?

Keeping a wound covered helps to prevent infection and promotes healing. You should always have a dressing on your wound.

Wounds should not be left open to the air to "breathe". We don't breathe through our skin! Oxygen is carried in our blood and gets to the wound by the blood.

Normally we don't allow wounds to dry



out and form a scab because when this happens, the wound takes longer to heal, is much more painful, there is more scarring, and there is a greater risk for infection.

If your wound is healable the nurse will use a dressing that can stay on for several days, in some cases, for a week or more. This may sound surprising, and if you have come from the hospital where dressings were changed every day it might worry you. Don't worry! Now that you are home or receiving care at the clinic the kinds of dressings that will be used may be different than in the hospital. Think of them as a blister that is allowing your wound to heal underneath while at the same time protecting it from germs and trauma.

You may be surprised to see how moist the wound is under the dressing. We want it to be moist, like the inside of your eye. This kind of moisture allows the new skin to grow and your wound to heal more quickly.

Sometimes your wound will have dead tissue like a wet or dry scab in it. This dead tissue is a barrier to healing and must be removed. Your nurse will use dressings to get rid of the dead tissue. This is called autolytic debridement. During this process you will notice some things that may concern you. Don't worry, these are all normal and part of the process but if at any time you are worried talk to your nurse. You may notice:

- Increased drainage
- Odor when the dressing is removed; it should go away when the wound is cleaned

The wound may look larger

Once the dead tissue is removed from your wound it should look moist, pink and slightly bumpy. This means it is ready to grow the new tissue it needs to heal.

If your nurse has determined that your wound cannot heal then they will not encourage autolytic debridement and the dressings will be different. They may use dressings that can be changed more often and that do allow the wound to dry out. Your nurse may paint antiseptic on the wound to help reduce the risk for infection. In both cases your nurse may teach you how to change your dressings. They will show you exactly what to do, order your supplies and check in with you on a regular basis to see how you are doing. Refer to the section called "How to Change my Dressing".

# Will my Wound be Painful?

Sometimes wounds hurt. Pain can interfere with your daily activities, reduce your appetite and make it hard to sleep. It can even slow the healing process. Most pain can be treated effectively with medication or other therapy.

If you have pain from your wound talk to your nurse so that they can suggest medications or other therapy to reduce your pain. They may need to contact your doctor for a prescription.

You will be asked to rate the intensity of your pain with 1 being the least painful or no pain and 10 being the worst pain you have ever experienced. Your pain rating will change, and pain should decrease with the right dressing and as your wound heals.

Your nurse will want to know the answer to the following questions, write your answers on this chart and discuss them with your nurse.

When does the wound hurt?

Rate your pain 1 2 3 4 5 6 7 8 9 10

What makes your wound feel worse?

What makes it feel better?	
The medication I will take for my wound pain is:	
I take it every hours.	
Side effects I need to be aware of are:	

If your doctor prescribes medication for your pain, please take it as prescribed. Sometimes people stop taking their medications because they feel better, but the reason they were feeling better is they were taking their pain medication! Follow the instructions; don't take the medication more often than prescribed.

If you aren't taking pain medications on a regular schedule, have pain medication available that you can take when you need it. If your dressing changes are painful, take your pain medicine about an hour before you are going to have your dressing changed so that it has a chance to get working. As your wound healing progresses you may be able to reduce your pain medications. Talk to your nurse about this.

### Is my Wound at Risk for Infection?

Sometimes diabetic foot ulcers can develop an infection. An infection in a diabetic foot ulcer can be very serious.

There are many ways to reduce the risk of infection. Your nurse will teach you how:

- To perform <u>hand hygiene</u> by washing your hands or using alcohol based hand cleaner before and after you do your dressing
- To keep your dressing supplies in a clean container and away from pets

Your nurse has been trained to recognize the signs of infection. Some kinds of wound infection are called *Superficial Infections*.

This means that the germs are only on the surface of the wound. They won't make you sick, but they can slow wound healing. You may see an increase in drainage, odor, pain or some redness around the wound, but you won't have chills or fever because of it.

Superficial infection is managed with specialized <u>antimicrobial dressings</u>. Your nurse may decide to use one of these if they think your wound needs it. Your nurse will not take a <u>swab</u> when they determine that you have a superficial infection as swabs do not tell us if the wound is infected. We don't use antibiotics for superficial infections.

Another, more serious kind of infection, is called <u>Deep Tissue Infection</u>. In this case the germs have spread to your body and are making you sick.

You may see redness and swelling spreading beyond the wound. The pain may increase, and you might have a temperature or have chills. This kind of infection needs a prescription for antibiotics. Your nurse will take a swab if they think that you have a Deep Tissue Infection so that your doctor will know what antibiotics will be effective. If you are given antibiotics be sure to take them as prescribed and finish them.

If you think you have Deep Tissue Infection you should see your doctor right away or go to the nearest hospital emergency.

### Can I Shower or Bath?

- Bathing is not usually permitted when you have a wound because it is not good for the wound to soak in your bath water. You may need to have a "sink bath" while your wound is healing,
- There are two kinds of dressings some dressings must be protected from water and some dressings are waterproof. Be sure to check with your nurse or doctor about what kind of dressing you have,
- If your nurse or doctors says it is ok, you can take the dressing off and shower,
- If you are permitted to shower, use a handheld shower, if you have one. Gently spray water from the top to the bottom of the wound allowing clean water to run over it,
- Do not use soap, shower gel, body lotion, talcum powder or other bathing products directly on your healing wound and do not rub the area as this might be painful and could delay healing,
- Swimming is usually not allowed with dressings, however if you have a waterproof dressing it may be ok. Again, check in with your nurse or doctor.

# How does what I Eat and Drink affect my Wound?

Wound healing requires good nutrition. Your body needs extra protein and vitamins and minerals to heal.

Here are Some General Guidelines to Consider:

- Don't try to lose weight when you have a wound to heal
- Try to eat a variety of foods following Canada's Food Guide





https://www.canada.ca/en/health-canada/services/canada-food-guides.html

- Don't skip meals
- Your body needs fluids. Try to drink 6-8 glasses of water or other fluids per day. Drinks with caffeine can cause you to lose fluids, so do not count them in your total
- If you have been told to limit your fluid intake by your doctor, be sure you follow those instructions
- Talk to your dietician about getting the nutrients you need for wound healing while eating a diabetic diet
- If you don't feel hungry try to eat smaller meals more frequently
- Weigh yourself once a week. If you are losing weight you may have trouble healing your wound so contact your doctor
- Take a multivitamin
- If you find it hard to eat a balanced diet, try a protein shake or buy a food supplement. There are some recipes in our Nutrition Guide found on our website at www.carepartners.ca under the tab 'Health Information'.

### **Here are Some Examples of Nutrients in Foods:**

Discuss these with your nurse. Circle the foods you will try to eat more often:

Vitamins & Minerals	Food Source
Vitamin C	Citrus fruits & juices (oranges, lemons, limes, grapefruit), berries, sweet peppers, Brussels sprouts, cantaloupe, tomatoes, cauliflower, broccoli, potatoes, bok choy, kimchi, sauerkraut
Vitamin A	Liver, milk/dairy, eggs, fish oils, leafy green vegetables, orange and yellow vegetables
Vitamin E	Delays wound healing. If you are taking a Vitamin E supplement stop while your wound is healing.
Zinc	Meat, fish, seafood, poultry, liver, eggs, milk, legumes, chick peas, whole wheat bread, wheat germ
Iron	Meat, poultry, fish, organ meats, eggs, legumes, nuts, dried fruit, fortified breads, cereals and pastas, tahini, kimchi, sauerkraut
Protein	Meat, fish fresh or canned, dried fish, dried meat, poultry, cheese, eggs, milk, yogurt, protein shakes, tofu, chick peas

# Why should I Stop Smoking or Vaping when I have a Wound?

Wounds must have oxygen to heal. We get oxygen when we breathe air in. If we have heart or lung disease the oxygen we breathe in cannot get to the wound. Smoking tobacco in any form can prevent your wound from getting the oxygen it needs. This is especially true if your wound is on your leg or foot or you have diabetes or heart disease.

It is estimated that one cigarette decreases the amount of oxygen in your blood for 1 hour. If you smoke a cigarette every waking hour, then all day you have reduced oxygen just from smoking.

We know that asking you to stop smoking is a really big deal. If you think you can or if you want help, check out this resource:

## Government of Ontario Support to Quit Smoking

https://www.ontario.ca/page/support-quit-smoking



If you can't quit, then consider trying to reduce the number of tobacco products you use in a day or maybe limit the time of day you smoke to after supper. Any tricks you can use to lower the amount you smoke will make a difference.

E-cigarettes and vaping (including marijuana) also have an impact on wound healing because they contain many of the same chemicals that are in cigarettes. Consider trying to reduce your use of e-cigarettes or vaping whenever possible.

Second hand smoke (the smoke from someone else smoking) can contain as many harmful ingredients as smoking and will affect your healing. If someone in your house smokes, ask them to try to go outside away from open windows. If they smoke in the garage, use a fan to blow smoke toward the outside.

Second hand smoke is unhealthy for the nurses caring for your wound too. Never smoke when your nurse is in your home.

## How can I Avoid Trauma to my Wound?

Trauma can be anything that causes harm or injury to the area of the wound. Always avoid:

- Tight fitting shoes,
- Walking barefoot,
- Bumping your leg on furniture or car doors if the wound is on your leg,
- Pets and kids bumping you or jumping on you and hitting your wound.

Wounds can be easily damaged. Take care of your wound by protecting it from trauma.

# How to Change my Dressing



You may be asked to purchase a few items for the nurse to use when doing your wound care and to keep these items clean. Our nurse will provide you with sterile instruments. This may include forceps, scissors and a probe. Be sure that you or your nurse only use these instruments for your dressings.

Your nurse will show you how to change your dressing and tell you how long to keep the

dressing on between dressing changes. They will recommend specific products.

Ask your nurse or doctor about whether you should shower or bathe after you remove the old dressing and before you apply the new dressing.

### **6 Steps to Change Your Dressing**

- 1. Prepare the area in which you will do the dressing change
- 2. Gather your supplies
- 3. Remove the old dressing
- 4. Cleanse the wound
- 5. Apply new dressing
- 6. Cleanse your equipment

### Prepare the area

You will need a clean spot to do your care with good lighting. Remove kids and pets from the area.

### Check off the supplies you need

	Alcohol based hand cleaner for your hands
О	Adhesive remover
О	Gauze pads
O	Sterile normal saline
O	No sting barrier film nor skin prep
O	Tape
O	Plastic sealable trash bag
O	Clean towel to absorb spills
O	Forceps and scissors if needed
O	Dressings

### Remove the old dressing

- 1. Clean your hands with soap & water or an alcohol-based hand rub.
- 2. Slowly lift the corners or edge of dressings, if it is sticky use the adhesive remover to loosen.
- 3. Hold down the skin and pull tape across the skin rather than pulling. If you have an adhesive dressing anchor the dressing with one hand and stretch it away from the wound to loosen it. Do not tear your skin.
- 4. Throw away the used dressings in plastic bag.
- 5. Clean your hands again.

#### Clean the wound

- 1. Place a towel under the wound.
- 2. Cleanse the wound with the saline the way your nurse showed you.

- 3. Use gauze to blot the surrounding skin around the wound.
- 4. Discard used gauze into the plastic bag.
- 5. Check the wound for redness, drainage, swelling or odour.

### Apply the new dressing

- 1. Open new dressing & remove from the package. Only touch the corners.
- 2. Apply skin barrier or skin prep to the skin around the wound.
- 3. Center dressing over wound.
- 4. Secure with tape or, if the dressing is adhesive, smooth out the adhesive borders.
- 5. Discard packaging into plastic bag and seal the bag.
- 6. Clean your hands.
- 7. Put the plastic garbage bag in a larger garbage bag for disposal with your regular household garbage.

# How to Clean my Equipment

Each time after wound care is completed, follow these directions to clean the instruments:

- 1. Fill a clean bowl with warm water and add dish soap,
- 2. Wash each instrument in the warm water removing anything visible,
- 3. Rinse the instruments under the tap with warm running water,
- 4. Lay instruments on a clean towel or paper towel and air dry them,
- 5. Once the instruments are completely dry, put them in a clean, plastic container with a lid or a clean, sealable plastic bag,
- 6. Close the lid of the container or seal the bag,
- 7. When it is time to do your wound care, remove the instruments from the container or bag and complete your wound care,
- 8. Repeat the cleaning procedure each time wound care is completed,
- 9. Once the wound is closed and no more wound care is required, safely dispose of the instruments.

## When to Call my Nurse

Call your nurse if any of the following occur:

- 1. Increased pain at wound site
- 2. Redness or swelling around wound or spreading out from the wound
- 3. Warmth around the wound site
- 4. Foul odor from wound after you have cleaned it
- 5. Change in colour or amount of drainage
- 6. Fever, chill or nausea

# I am Ready for Discharge: What Do I Need to Know?

There will come a time when you and your nurse agree that it is time to discharge you from nursing services because your wound is closed or because you now have all the skill you need to look after it yourself.

There is still a lot going on under the surface. It can take up to 2 years for your wounded area to get back its strength. Even then it won't be as strong as it was before your injury because the new tissue is scar tissue and doesn't have all the characteristics of uninjured skin.

Always protect the area from pressure, trauma and other forms of injury.

If you have stopped or reduced smoking keep doing it!!!

# **Important Contact Information**

# If you Need Help:

How to contact your nurse:	
How to contact your doctor:	
The nearest hospital emergency address:	
Notes:	

## Glossary of Terms

**Antimicrobial dressings:** are used to reduce the number of micro-organisms in the wound which reduces the risk of infection.

**Autolytic debridement:** uses the body's own enzymes and moisture to re-hydrate, soften and finally liquefy hard eschar (scab) and slough (wet dead tissue) in the wound. Only dead tissue is liquefied. It is virtually painless for the patient.

**Autonomic neuropathy:** is a group of symptoms that occur when there is damage to the nerves that manage every day body functions. These functions include blood pressure, heart rate, sweating, bowel and bladder emptying, and digestion.

**Charcot foot:** is a condition causing weakening of the bones in the foot that can occur in people who have significant nerve damage (neuropathy). The bones are weakened enough to break, and with continued walking, the foot eventually changes shape.

**Conservative sharps debridement:** conservative sharp wound debridement (CSWD) is the removal of loose avascular tissue without pain or bleeding.

**Deep tissue infection:** infection in a wound that has reached the deeper layers of the body. A deep infection means that the whole body is infected, not just the wound and oral or IV antibiotics are needed for healing.

**Diabetic neuropathy:** a type of nerve damage that can occur if you have diabetes. High blood sugar (glucose) can injure nerves throughout the body. It most often damages nerves in the legs and feet.

**Germs:** microorganism, especially one that causes disease.

**Hand hygiene:** cleaning hands to remove soil, dirt, and germs. If water and soap are not available, hands can be cleaned with alcohol based hand rub.

**Healable wound:** a wound that is ready to heal and all the patient factors make it able to heal; these factors include circulation, diet, devices etc.

**Loss of protective sensation:** neuropathy that leads to lack of feeling in the feet. The person does not feel trauma and so is at high risk for wounding.

**Maintenance wound:** a wound where healing has stalled due to factors that need to be corrected such as blood sugars in the person with diabetes or the purchase of specific equipment or perhaps remedial surgery.

**Motor neuropathy:** damage to the nerves that control your muscles. The condition makes it hard for the nerves to send the electrical signals that move your body, which makes your hands and arms feel weak. Can lead to stumbling or tripping and injury.

**Non-healable wound:** a wound that cannot heal due to factors that cannot be corrected such as poor circulation.

**Offload:** removing pressure from an area that is at risk of wounding or has a wound.

**Sensory neuropathy:** neuropathy is when nerve damage interferes with the functioning of the peripheral nervous system. Sensory nerves are the nerves that allow us to feel sensations like pain or friction.

**Superficial infection:** A wound infection that is localized to just the wound. The body is not infected and the patient does not need systemic antibiotics to heal.

**Swab**: a test that the nurse can perform by touching a special cotton tip applicator to a cleaned wound and then sending the applicator to a laboratory to see what microorganisms grow. The results from a swab tell the doctor what kinds microorganisms are growing on the wound and what antibiotics might work to treat infection.