ELECTRICAL STIMULATION THERAPY (E-STIM)

Frequently Asked Questions

What is Electrical stimulation therapy (E-STIM)?

- Is an adjunctive therapy that speeds closure of all types of chronic wounds, including pressure ulcers. Application of E-STIM involves placing specialized electrodes in the wounded area through which electrical current is delivered at a level that produces a pins and needles sensation.
- Treatments are applied at the time of each dressing change using a portable device that is programmed to work for at least 1 hour per day.

How does E-STIM work?

- Electrical currents applied to the wound site re-activates many different wound healing processes. The electrical signal also has been shown to kill bacteria found in most wounds and it improves blood flow and increases oxygen levels in and around the wound.

Is using E-STIM considered Best Practice or Experimental?

- E-STIM has been around for a long time and many research reports have shown when E-STIM is added to standard wound care, it can speed healing and increases the likelihood of complete closure of pressure ulcers, diabetic foot ulcers and leg ulcers due to poor circulation (venous and/or arterial insufficiency).
- Recently updated RNAO Best Practice Guidelines (2016) and Canadian Best Practice for people with SCI and Pressure Ulcers (2010) concluded that E-STIM has the highest level of evidence (Level 1a) that is works on Stage II, III, IV Pressure Ulcers that were not healing at an expected rate. No other advanced therapy was assigned such a high strength of evidence.
- A pragmatic controlled clinical trial conducted within SW Ontario region reported E-STIM treatment of people living with SCI and chronic stage III and IV pressure ulcers (average duration > 1 year) had an average of 75% wound closure after 3 months and 70% of wounds closed completely with continued treatment. The average time to heal these chronic wounds was 120 days.

Who should provide E-STIM to individuals with chronic open wounds.

- E-STIM is an advanced wound therapy that requires additional education for clinicians to learn the safe and effective application of electrical currents directly to the wound to stimulate healing. Unfortunately, current wound care education programs (NSWOC, AWCCP (Wounds Canada), and IIWCC (U of T) do not include education about E-STIM.

Where can I get additional education on how to apply E-STIM

- ESTIM education including online courses and resources (videos and handouts) are available on the estim4wounds.ca website (https://estim4wounds.ca/e-stim/). Clinicians (RNs, PTs, MDs, and Chiropodists) with wound care experience can register for the E-STIM online course by contacting Pamela Houghton (phoughto@uwo.ca).

Who is appropriate for E-STIM?

- Clients with a chronic wound of known etiology, who are medically stable, and are receiving appropriate wound care including the use of wound dressings that promote moist interactive healing and treatments that address underlying causes have been initiated (e.g. pressure redistribution).
- There are certain situations and medical conditions where E-STIM should not be used (CONTRAINDICATIONS). This is because of an increased likelihood that an adverse reaction can occur (skin irritation, pain, sudden surge, or wound deterioration). People with conditions listed as PRECAUTIONS can receive E-STIM, however, it should be applied by an experienced clinician who knows what to watch for and is able to provide closer monitoring for potential adverse reactions.
- People considering using E-STIM should be screened for contraindications and pre-cautions prior to commencing E-STIM. See list of CONTRAINDICATIONS & PRECAUTIONS listed on the estim4wounds.ca website under the E-STIM tab.
- Wounds present for less than 6 months are known to respond best to E-STIM.

What equipment can be used to deliver E-STIM

- Electrical stimulators that deliver a waveform called High Voltage Pulsed Current (HVPC). This type of electrical current is not typically found on TENS units commonly used to treat pain or stimulate muscles.
- Currently two devices available in Canada that have been approved by Health Canada.

Micro Z – II device is a small portable device that is very user friendly since it has many stimulus parameters pre-programmed into the machine. A visual light display on the front of the machine can be used to set the appropriate intensity (comfortable pins & needles sensation). Often individuals receiving E-Stim can be trained (and monitored) to apply their own treatments using this small device.

GV-350 – a portable battery-operated device that delivers HVPC. This is a more durable device will last several years that can be cleaned and used between patients. All E-STIM stimulus parameters (Intensity, Frequency, Polarity, Treatment time) can be selected so treatment can be customized for each patient. The output of GV-350 is greater than Micro Z II and sufficient to treat larger/deeper wounds.

Where can I obtain E-STIM devices and accessories

- Any medical equipment distributors that provide Health Canada approved HVPC units can provide E-STIM equipment. There are many companies offer both online and in-store access to electrical stimulators, however, most companies stock simple TENS units rather than more expensive HVPC devices. Whatever company provides E-STIM, should know what and how E-STIM equipment and accessories are used to stimulate wound healing. For example: Maureen McNiece at McNiece TENS in London, Ontario has years of experience providing E-STIM equipment and supplies for the treatment of chronic open wounds and both Micro Z II and GV-350 devices and accessories are available (https://mcniecetens.ca/collections/wound-healing-hv-microcurrent)