

# Wound Sleuth

By Sheri McPhee RN BScN MEd NSWOC WOCC (C)

## To Swab Or Not To Swab? That Is The Question

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M.L. is a 69-year-old male client receiving daily nursing visits for chronic wounds to the left lower leg. The client states he has been, “dealing with this lower leg wound for over four months”. Within the past few days, the visiting nurse has noted an increase in wound size and drainage and the client reports increased pain. Three days ago, a wound swab was obtained and the wound care clinician was consulted.

Medical history includes: hypertension, chronic obstructive pulmonary disease, peripheral arterial disease, substance abuse and a recent angioplasty to improve circulation to the left lower limb.

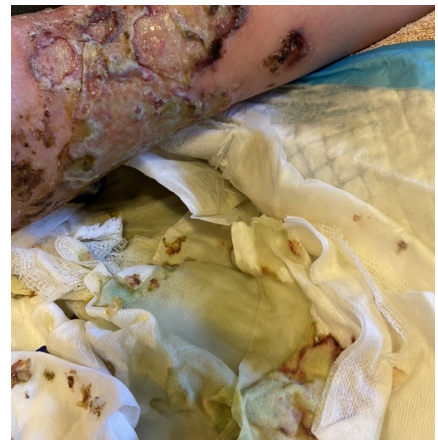
Medications include: ASA, hydrochlorothiazide, acetaminophen, magnesium sulphate and nicotine patch.

There are no known allergies.

### Wound Care Clinician Assessment Findings

Dressings are saturated with foul-smelling drainage; the colour of exudate is green with a blue hue (see Figure 1). There are new areas of skin breakdown, increased wound measurements and erythema extending from ankle to the knee. The client states he is feeling very tired and has not been sleeping well due to increased wound pain. The client denies fever and states his appetite is fair.

The wound care clinician contacted the client’s physician to discuss the current clinical assessment findings noted above and to inquire regarding the status of the wound culture and sensitivity report. The physician states, “the swab is negative with no evidence of infection”.



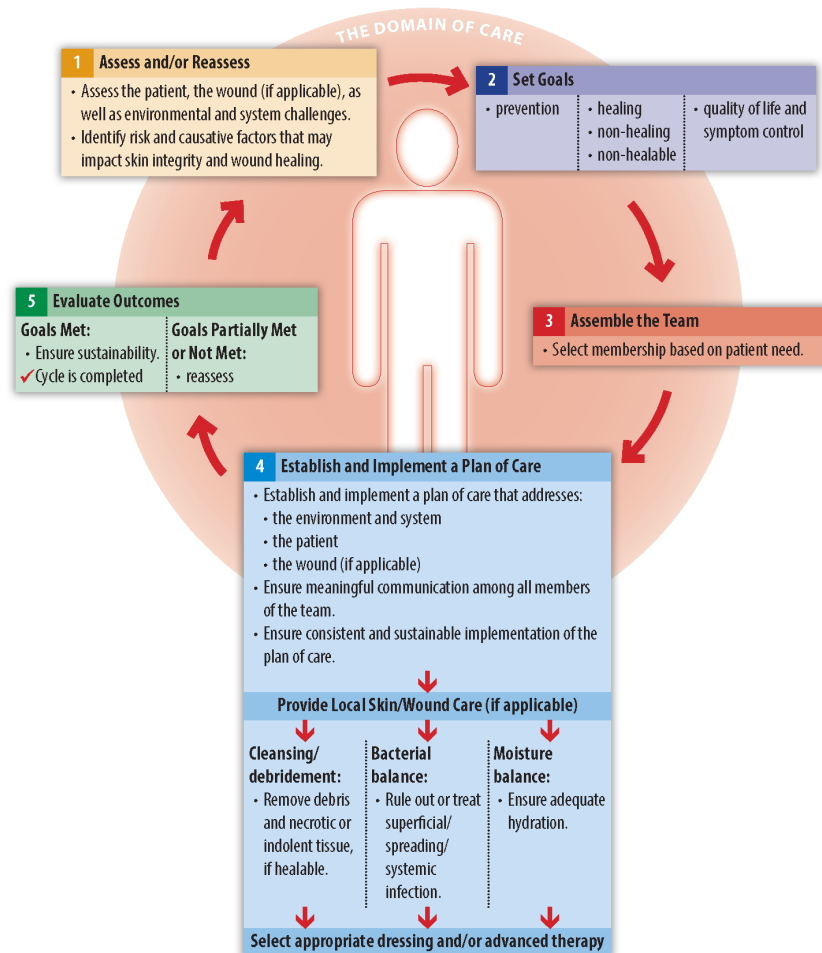
**Figure 1.** Left lower leg wound exudate.

### What Are Some Of The Key Considerations For The Clinician To Consider When Deciding How To Proceed?

1. Open communication with the physician and advocating for the client are priorities within this case.
2. Incorrect or delayed treatment of wound infections can lead to prolonged healing times, increased risk of com-

# The Wound Prevention and Management Cycle

Assess/Reassess ► Set Goals ► Assemble Team ► Establish and Implement ► Evaluate



**Figure 2.** Wounds Canada: Wound Prevention and Management Cycle.<sup>2</sup>

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plications, increased health-care costs and can negatively impact the overall quality of life for persons with wounds and their caregivers.<sup>1</sup>

3. The Wound Prevention and Management Cycle (see Figure 2) notes that addressing the bacterial balance within the wound is necessary to appropriately manage the wound.
4. Utilizing the NERDS and STONES criteria can assist the

clinician when differentiating between superficial bacterial burden and deep infection.<sup>3</sup>

5. It is vital to complete a pain assessment in conjunction with the wound assessment; although not a defining sign, increasing pain is a potential indicator of infection.<sup>4</sup>
6. There are several ways to obtain a wound specimen; wound swab, tissue biopsy, debrided viable tissue from

the wound bed and wound fluid aspirate. Each type of specimen collection requires a level of skill/competency and must be completed by a trained clinician.<sup>1</sup>

## What Are The Next Steps For The Clinician In This Case?

1. The client has clinical signs and symptoms suggesting the presence of deep infection.
2. When speaking with the physician, the wound clinician emphasized the patients' current signs/symptoms and requested an order to repeat the swab for culture and sensitivity.
3. The wound clinician is trained in sharp debridement and suggested obtaining a swab using the Levine technique post wound debridement. Research suggests the Levine technique of wound swabbing is superior to the Z tract method.<sup>4</sup>
4. The attending physician provided an order for debridement and wound swab for culture and sensitivity. No antibiotic treatment was initiated as the physician stated he would address this once the report of swab sample was available. Client refused additional pain medication due to history of substance abuse.
5. Three days after the repeat sample was sent for microbiology, the final report noted the following:
  - a. Heavy growth of *Pseudomonas aeruginosa*.

## NERDS and STONES

Non-healing wounds

Exudative wounds

Red and bleeding wound surface granulation tissue

Debris (yellow or black necrotic tissue) on the wound surface

Smell or unpleasant odor from the wound

**For deep infection, think of STONES:**

Size is bigger

Temperature is increased

Os probe to or exposed to bone

New or satellite areas of breakdown

Exudate, erythema, edema

Smell

Source: Sibbald, Woo, Ayello.<sup>3</sup>

b. Heavy growth of *Staphylococcus aureus*.

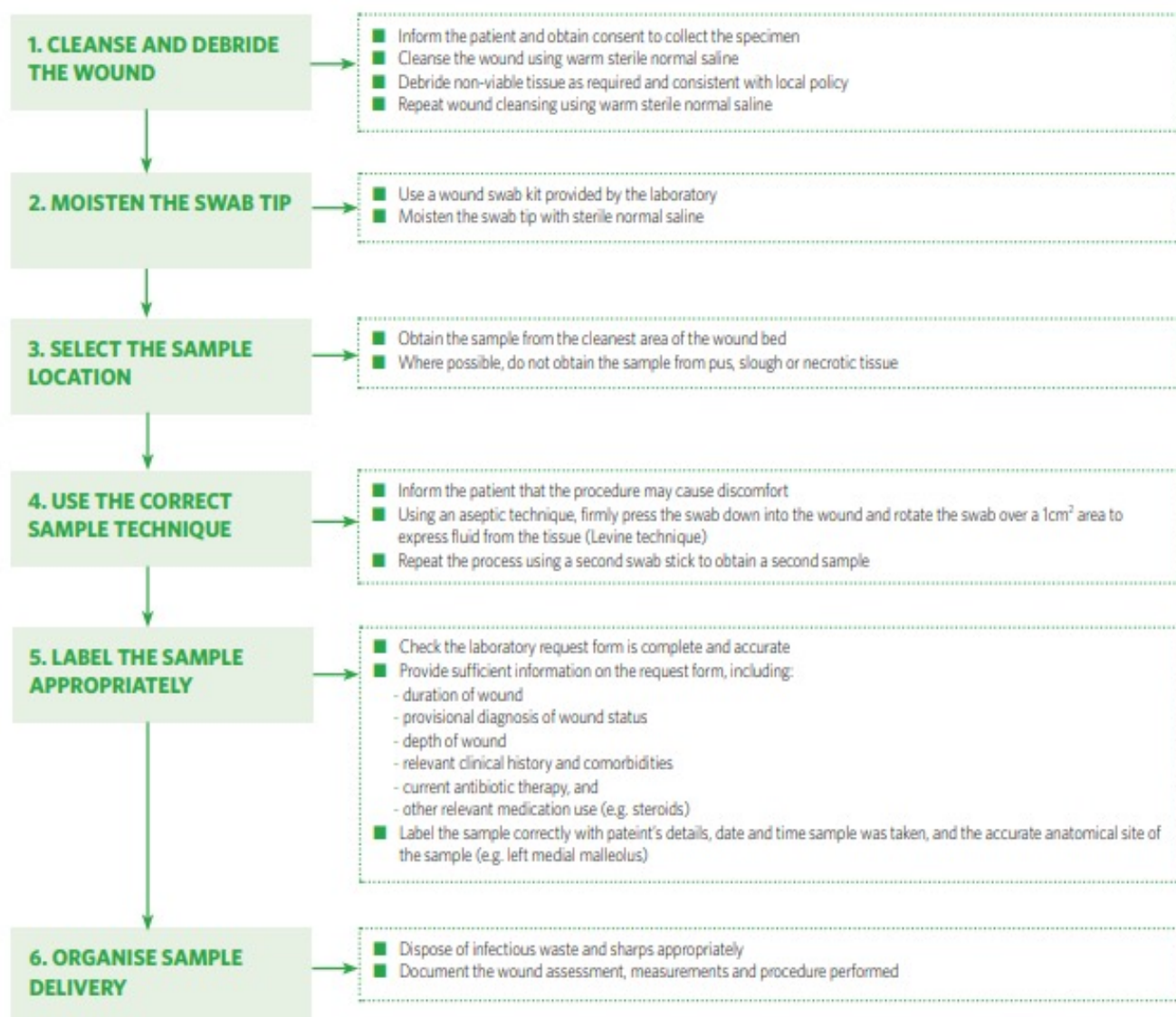
c. Moderate growth of *Streptococcus Group C/G*.

## Treatment Plan

A treatment plan was based on the specific bacteria and their susceptibility to antibiotic therapies. The physician prescribed IV ceftazidime twice daily for two weeks, 'vinegar soaks' twice daily for 10 days

were also ordered. Acetic acid 5% diluted with sterile water to achieve a 0.25% concentration was used to implement a 'vinegar soak'. The acetic acid solution was poured into a sterile dressing tray, several 4x4 gauze were placed into solution then placed onto the wound. The wound was rinsed with normal saline following the 10 minute soak and the wound dressed with an absorbent pad twice daily.<sup>6</sup>

Upon follow up 10 days later, the wound was showing signifi-



**Figure 3.** Taking a wound swab for culture. Source: IWII Update 2022 Pg.15





**Figure 4.** Left lower limb 10 days post antibiotics.

cant signs of improvement; no odour, scant exudate, decreased erythema and the client was reporting no pain (see Figure 4).

## Summary

This case highlights the importance of clinical wound assessment skills using a holistic approach. Clinicians must remember the purpose of wound cultures is not to determine the presence of infection, but to determine the specific organisms present, thereby guiding selection of the most appropriate antimicrobial treatment. The International Wound Infection Institute (IWII) 2022 Guidelines note that tissue biopsy is the preferred method for sampling;<sup>1</sup> however this method is more costly and requires a trained professional to obtain the specimen, therefore is not always feasible. Although wound swabbing continues to be the most

frequent sampling method used, not every wound should be swabbed. The decision to culture a wound should be based on the presence of clinical signs and symptoms of wound infection. 🚫

**Sheri McPhee RN BScN  
MEd NSWOC WOCC(C)** is a wound consultant with the Nova Scotia Provincial Wound Management Program.

**FIRST-TIME  
AUTHOR**

*Wound photos used with client's permission.*

## References

1. International Wound Infection Institute (IWII) Wound Infection in Clinical Practice. *Wounds International*. 2022
2. Orsted HL, Keast DH, Forest-Lalande L, Kuhnke JL, O'Sullivan-Drombolis D, Jin S, et al. Best practice

recommendations for the prevention and management of wounds. In: Foundations of Best Practice for Skin and Wound Management. A supplement of Wound Care Canada. 2017:74 pp. Retrieved from: [www.woundscanada.ca/docman/public/health-care-professional/bpr-workshop/165-wc-bpr-prevention-and-management-of-wounds/file](http://www.woundscanada.ca/docman/public/health-care-professional/bpr-workshop/165-wc-bpr-prevention-and-management-of-wounds/file).

3. Sibbald RG, Woo K, Ayello EA. Increased bacterial burden and infection: The story of NERDS and STONES. *Adv Skin Wound Care* [Internet]. 2006;19: 447-461. Available from: <https://pubmed.ncbi.nlm.nih.gov/17008815/> DOI: 10.1097/00129334-200610000-00012
4. Stallard Y. When and how to perform cultures on chronic wounds? *J Wound Ostomy Continence Nurs* [Internet]. 2018;45(2):179–186. Available from: <https://pubmed.ncbi.nlm.nih.gov/29521930/> DOI: 10.1097/WON.0000000000000414
5. Rajhathy EM, Meer JV, Valenzano T, Laing LE, Woo KY, et al. Wound irrigation versus swabbing technique for cleansing noninfected chronic wounds: A systematic review of differences in bleeding, pain, infection, exudate, and necrotic tissue. *J Tissue Viability* [Internet]. 2023;32(1): 136–143. Available from: <https://pubmed.ncbi.nlm.nih.gov/36462962/> DOI: 10.1016/j.jtv.2022.11.002
6. CLWK. (2020) Skin and Wound Product Information Sheet for acetic acid. <https://www.clwk.ca/get-resource/acetic-acid/>