

Developed in collaboration with the Wound Care Champions, Wound Care Specialists, Enterostomal Nurses, and South West Regional Wound Care Program (SWRWCP) members from Long Term Care Homes, Hospitals, and South West CCAC contracted Community Nursing Agencies in the South West Local Health Integration Network.



Title	Guideline: The Assessment and Management of Moisture in Acute and Chronic Wounds
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Background	<ul style="list-style-type: none"> • As per the concept of <i>Preparing the Wound Bed</i>, local factors must be assessed and managed in order to promote timely and orderly closure of wounds. This includes the consideration of the degree of moisture present in a wound • Exudate is the term given to describe the fluid that leaks from a wound. Its characteristics are influenced by wound etiology; wound healing physiology, the wound environment, and compounding pathological processes. These characteristics can help us diagnose wound infection, evaluate the effectiveness of topical therapy, and monitor progression towards wound closure¹ • Exudate consists of many components including (but not limited to): electrolytes, nutrients, proteins, inflammatory mediators, protein digesting enzymes (i.e. matrix metalloproteinase – MMPs), growth factors, waste products, neutrophils, macrophages, platelets, etc.¹ • In ‘healable’ wounds, a balanced moist wound environment is necessary to allow for granulation tissue deposition, regrowth of blood vessels, epithelial cell migration, cell proliferation, provision of nutrients for cell metabolism, diffusion of immune and growth factors, to help with autolysis of necrotic tissue, and to prevent the wound bed from drying out¹ • A wound bed that is too moist may “delay or prevent healing, cause physical and psychosocial morbidity and/or increase demand on healthcare resources”¹ • In a ‘healable’ chronic wound in which the process of wound closure has stalled despite best practices, the components of the wound exudate may be unbalanced and may be impeding ‘healing’ by: <ul style="list-style-type: none"> ○ Slowing/preventing cell proliferation; ○ Interfering with growth factor availability; ○ Increasing the number of inflammatory mediators and activated MMPs, and/or; ○ Increasing the amount of proteolytic activity, which degrades the extracellular matrix¹⁻⁴. • A moist wound healing environment is not appropriate for wounds deemed, ‘maintenance’ or ‘non-healable’ as the goals of such wounds typically are to stabilize, prevent deterioration, and manage exudates/odor, etc. • Without addressing the underlying cause of the wound, co-factors affecting wound healing, person-centered concerns, and the need for debridement and infection/inflammation management, NO
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	DRESSING IN THE WORLD will close the wound in question in a timely/cost-effective manner! You MUST approach wound management holistically (it's not all about the dressing)!																	
Indications	This guideline is intended to be used by front line registered health care providers, to guide their assessment and management of exudate in those individuals admitted with or presenting with a wound.																	
Guideline	<p>NOTE: The assessment and management of a person's wound for moisture balance is but one part of the holistic assessment and management of individuals admitted with/presenting with a wound.</p> <p>Assessment</p> <p>1. Review the person's medical records and note any factors present that may be influencing exudate production, and implement strategies to correct modifiable factors as warranted¹:</p> <table border="1"> <thead> <tr> <th rowspan="2">Factor</th> <th colspan="2">Effect on Exudate</th> </tr> <tr> <th>Increased</th> <th>Decreased</th> </tr> </thead> <tbody> <tr> <td>Wound healing stage</td> <td> <ul style="list-style-type: none"> Inflammatory stage of normal wound healing Wounds that are not healing as expected (chronic wounds; sustained inflammatory phase) Autolytic debridement </td> <td> <ul style="list-style-type: none"> Near end of the healing process Wounds with dry eschar </td> </tr> <tr> <td>Local factors</td> <td> <ul style="list-style-type: none"> Local infection, inflammation, or trauma Presence of a foreign body Edema Sinus or urinary, enteric, lymphatic or joint space fistula </td> <td> <ul style="list-style-type: none"> Ischemia </td> </tr> <tr> <td>Systemic factors</td> <td> <ul style="list-style-type: none"> Cardiac, renal, hepatic failure Infection/inflammation Endocrine disease Medications Obesity/malnutrition </td> <td> <ul style="list-style-type: none"> Dehydration Hypovolemic shock Microangiopathy </td> </tr> <tr> <td>Practical factors</td> <td> <ul style="list-style-type: none"> Wound position Heat Reduced willingness/ability to cooperate with treatment Inappropriate dressing use/intervention </td> <td> <ul style="list-style-type: none"> Inappropriate dressing use/intervention </td> </tr> </tbody> </table> <p>2. Review the person's medical records for the following information:</p> <ol style="list-style-type: none"> "Healability" status (see the "Determining Healability Tool") Information re the size, location, and characteristics of the wound to be assessed/debrided/dressed Current and recent past wound treatments and responses Current wound care orders <p>Planning</p> <p>1. Expected outcomes:</p> <ol style="list-style-type: none"> Information from the person's chart , the person and/or their substitute decision maker (SDM)/power of attorney for personal care (POA C), and your assessment allows for the determination of whether or not the wounds 	Factor	Effect on Exudate		Increased	Decreased	Wound healing stage	<ul style="list-style-type: none"> Inflammatory stage of normal wound healing Wounds that are not healing as expected (chronic wounds; sustained inflammatory phase) Autolytic debridement 	<ul style="list-style-type: none"> Near end of the healing process Wounds with dry eschar 	Local factors	<ul style="list-style-type: none"> Local infection, inflammation, or trauma Presence of a foreign body Edema Sinus or urinary, enteric, lymphatic or joint space fistula 	<ul style="list-style-type: none"> Ischemia 	Systemic factors	<ul style="list-style-type: none"> Cardiac, renal, hepatic failure Infection/inflammation Endocrine disease Medications Obesity/malnutrition 	<ul style="list-style-type: none"> Dehydration Hypovolemic shock Microangiopathy 	Practical factors	<ul style="list-style-type: none"> Wound position Heat Reduced willingness/ability to cooperate with treatment Inappropriate dressing use/intervention 	<ul style="list-style-type: none"> Inappropriate dressing use/intervention
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	<p>moisture balance is appropriate (i.e. if the wound has been deemed ‘healable’, then the wound tissue is neither too wet nor dry, and if the wound has been deemed ‘maintenance’ or ‘non-healable’ the wound tissue is not too wet); there is healthy or improving periwound tissue integrity; the wound bed appears healthy with no clinical signs of infection; dressing change requirements have reduced; there is a lack of or reduction in wound odor; wound size is diminishing; the amount of exudate is diminishing progressively; the type of exudate is changing as the wound progresses towards closure; and there is a lack of or reduction in wound pain</p> <p>b. Registered nursing staff, in collaboration with the individual with the wound and/or their SDM/POA C, and other involved health care disciplines, are able to use the assessment information to initiate/modify and implement an appropriate person-centered, interdisciplinary plan of care which contains clear directions to staff and others who are providing the person with direct care</p> <ol style="list-style-type: none"> 2. Explain the procedure and its purpose to the person and/or their SDM/POA C, and obtain informed implied/verbal consent 3. Assess the need for pre-procedure pain medication – removal of dressings, the dressing procedure itself, and/or debridement may be painful. If required, the person must be allotted enough time to achieve the drug’s peak effect BEFORE initiating the dressing change/debridement <p>Implementation</p> <ol style="list-style-type: none"> 1. Provide for privacy and ensure the person is in a comfortable position to facilitate assessment of the wound and for the wound debridement/dressing procedure 2. Wash your hands and attend to the person with your assessment tools and anticipated debridement and/or wound dressing supplies 3. If the person is in bed, raise the bed (if you are so able to) to an appropriate ergonomic position to allow for the wound assessment and treatment while preventing self-injury 4. Ensure adequate lighting 5. Don clean disposable gloves and additional personal protective equipment (PPE), i.e. gown, goggles, and/or mask as required if risk for splash back or spray exists 6. Remove the existing wound dressing as per the manufacturer’s instructions. Observe the dressing for the quantity and appearance of the exudate on the dressing (i.e. color and consistency – see the chart below) and for odor¹ :
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Exudate Color		
Descriptor	Color and Consistency	Significance
Serous	Clear/light yellow, thin/watery	'Normal' during the inflammatory and proliferative phase of wound healing, but may also be due to a urinary or lymphatic fistula or from fibrinolysis-producing bacteria
Sero-sanguinous	Pink – light red, thin/watery	'Normal' during the inflammatory and proliferative phase of wound healing. Color is due to the presence of red blood cells
Sanguinous	Bright red, thin/watery	Due to presence of red blood cells from new capillary growth or damage
Purulent	Darker yellow/tan or blue/green, thin → thick, watery → opaque	May be due to infection (presence of WBCs and bacteria), or may be from the presence of wound slough, fibrin strands, or materials from an enteric or urinary fistula. Blue/green color may be indicative of pseudomonas infection
Other	Some dressings and topical preparations can alter the appearance of wound exudate, i.e. silver, cadexomer iodine, etc.	
Exudate Consistency		
Descriptor	Consistency	Significance
Low viscosity	Thin, runny	<ul style="list-style-type: none"> Low protein content due to malnutrition and/or venous or congestive cardiac disease Urinary, lymphatic or joint space fistula
High viscosity	Thick, sometimes sticky	<ul style="list-style-type: none"> High protein content due to infection and/or inflammation Necrotic material Enteric fistula Residue from a topical preparation/dressing
Exudate Amount		
Descriptor	Definition	
None	There is no visible exudate on the dressing or on the wound tissue	
Scant	There is no measurable exudate on the dressing; however the wound tissues are moist	
Small	≤25% of the dressing has drainage on it, the wound tissues are visibly moist, and the moisture is evenly distributed in the wound	
Moderate	Drainage involves >25% to ≤ 75% of the dressing, the wound tissues are saturated, and the moisture is/is not evenly distributed in the wound	
Large	Drainage involves >75% of the dressing, the wound tissues are saturated and drainage is freely expressed from the tissue, and the moisture is/is not evenly distributed in the wound	
Odor		
Descriptor	Significance	
New odor in a wound with previously no odor or a changed odor in a wound with a chronic odor	<ul style="list-style-type: none"> Increased bacterial burden/infection Presence or increase in necrotic tissue Presence of a sinus/enteric or urinary fistula Type of dressings being utilized 	
Sickening sweet wound odor	<ul style="list-style-type: none"> Along with blue/green exudate, may indicate the presence of pseudomonas 	
7. Assess the current dressing's ability to manage exudates and odor, (this includes assessment of the periwound tissue), i.e. ¹ :		

	<ul style="list-style-type: none"> a. Inspect for leakage and any modifications made to contain exudate b. Was odor detectable before removal of the dressing? c. Was there strikethrough? d. How long after the dressing change did leakage or strikethrough take place? e. Is the seal provided by the dressing and fixation sufficient to prevent leakage? f. Is there evidence of periwound maceration or excoriation? If so, how far from the wound edge does it extend? g. Is the dressing being changed more frequently than intended due to exudate? If so, is this the appropriate dressing? <ol style="list-style-type: none"> 8. Dispose of the soiled dressings in the proper receptacle and remove and dispose of your soiled gloves 9. Perform hand hygiene and apply new clean disposable gloves and cleanse the wound as ordered or as per the “SWRWCP’s Dressing Selection and Cleansing Enabler – HEALABLE WOUNDS” or the “SWRWCP’s Dressing Selection and Cleansing Enabler – MAINTENANCE/NON-HEALABLE WOUNDS”. See “Procedure: Wound Cleansing” 10. Gently pat the wound bed dry (if required) and dry the surrounding skin with gauze 11. If indicated, and if you have the knowledge, skill, judgment, and authority, conservatively sharp debride any necrotic tissue present and re-cleans the wound [see: “Guideline and Procedure: Conservative Sharp Wound Debridement (CSWD)”] 12. Assess the wound using the “NPUAP PUSH Tool 3.0” (see “Procedure: NPUAP PUSH Tool 3.0”). Observe the wound/periwound exudate characteristics and for factors influencing exudate production (as per ‘Assessment’ #1) 13. Observe for clinical signs of increased bacterial burden/infection and manage, as per the “Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds” 14. If debridement interventions are further indicated see “Guideline and Procedures: Wound Debridement (excluding conservative sharp debridement)”, “Guideline and Procedure: Conservative Sharp Wound Debridement (CSWD)”, and/or consider a referral to a general surgeon or other such professional skilled in sharp debridement (and who has the authority to perform such a procedure), i.e. see “Criteria for Interdisciplinary Referrals” 15. Once you have assessed, cleaned, and debrided the wound, based on your holistic assessment and person-centered goals choose an appropriate dressing. Dressing qualities you may want to consider include (this list is not all inclusive): <ul style="list-style-type: none"> a. Wear time and ability of the dressing to remain in place
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- b. Ability of the dressing to manage pain
- c. Ability of the dressing to effectively manage exudates and odor
- d. Conformability, flexibility, weight/bulk
- e. Comfort
- f. Ease of application, use and removal
- g. Cost of the dressing vs. the frequency of dressing change and the nursing time required to apply it
- h. Moisture vapor transfer rate
- i. Ability to retain fluid under compression
- j. Ability to manage bacteria and/or inflammation
- k. Autolytic debridement properties/abilities
- l. Potential allergenic/sensitivity components
- m. Ethics
- n. How the dressing accommodates the person's needs
- o. Ability of the dressing to control bleeding
- p. How the dressing effects the exudate composition
- q. Manufacturers approved use for the dressing
- r. Availability of the dressing
- s. Ability of the dressing to act as a barrier to outside contaminants

16. **REMEMBER: dressings are but one small part of the holistic management of an individual and their wound, and must be evaluated each dressing change for their appropriateness. As the person factors and wound characteristics change over time, the dressing needs too will change**

17. Strategies for achieving a desired moist wound healing environment¹:

Aim	Strategies
Increase wound moisture	<ul style="list-style-type: none"> • Ensure an appropriate holistic plan of care is in place • Choose a dressing that conserves or donates moisture • Use a thinner, less absorbent version of the current dressing • Decrease the dressing change frequency
Maintain wound moisture	<ul style="list-style-type: none"> • Continue the current dressing regimen
Reduce wound moisture	<ul style="list-style-type: none"> • Ensure an appropriate holistic plan of care is in place • Choose a dressing that has greater fluid handling capacity • Use a thicker, more absorbent version of the current dressing • Increase the dressing change frequency

18. For wounds that are heavily exudating, if appropriate, you may wish to consider management with topical negative pressure⁵ or fluid collection devices, i.e. wound management, stoma, or urostomy bags

19. Prior to applying your dressing(s), if the periwound tissue is or is at risk for maceration/excoriation, consider protecting the tissue with:

- a. A liquid barrier (wipe or spray)
- b. Film dressing
- c. Hydrocolloid dressing

NOTE: the use of liquid barriers is contraindicated with certain silicone foam dressings. Please follow manufacturer's instructions

20. Apply your selected dressing. **NOTE: if ordered by a physician or nurse practitioner, you may NOT change the dressing protocol without their explicit consent. If you feel that a change in dressing protocol is warranted, discuss with the prescribing health care provider and collaborate with them to come to a mutually agreed upon solution. However; in the absence of a physician/nurse practitioner wound care order, as per the College of Nurses of Ontario standard '[Decisions About Procedures and Authority](#)'⁶, an RN or RN(EC) who meets certain conditions, i.e. has the knowledge, skill, and judgment, may initiate and/or provide an order for an RN or RPN to perform care below the dermis or mucous membrane, which includes cleansing, soaking, irrigating, probing, debriding, packing, and dressing ... BUT it is strongly suggested by the College that your choice of treatment is communicated with the primary physician**
21. Remove your gloves and other PPE and dispose of them and of any soiled supplies in the appropriate receptacle
22. Dispose of any used sharps in a sharps container
23. Clean reusable equipment/surfaces touched during the procedure with soap and water or detergent wipes and dry thoroughly to prevent cross infection, returning reusable equipment to the appropriate places
24. Wash your hands
25. Assist the person to a comfortable position if required, and assess for any concerns
26. Lower the person's bed to an appropriate height (if applicable), and ensure the person's safety, i.e. apply side rails, personal alarms, restraints, etc. as per the person's care plan/medical orders
27. Discuss your findings with the person and/or their SDM/POA C and implement referrals and further interventions as indicated
28. Share your wound assessment and intervention implementation findings/outcomes with the interdisciplinary members of the person's wound care team
29. Complete/update and implement an appropriate, person-centered, interdisciplinary plan of care, based on your holistic assessment and interventions, and as per your organization's policy

Evaluation

1. Unexpected outcomes:
 - a. The person reports poorly managed pain associated with this procedure and/or background wound pain is unchanged
 - b. There are or is an increase in the clinical signs of wound infection
 - c. The periwound skin becomes macerated or excoriated or such damage is extending

	<ul style="list-style-type: none"> d. There is soiling outside of the dressing e. The person has made an adjustment to the dressing to accommodate the exudate f. Dressing changes are too frequent g. Wound odor is uncontrolled h. The amount of exudate is not diminishing and the type of exudate is not changing as expected, as the wound progresses towards closure i. The wound environment is either too wet or dry <p>2. Re-assess the wound using the “NPUAP PUSH Tool 3.0” at a minimum of weekly to ensure your interventions are effective, and to determine if consideration of other/additional interventions are necessary and/or interdisciplinary referrals</p>
<p>References</p>	<ol style="list-style-type: none"> 1. Cutting KF. Exudate: Composition and functions. In: White, R (ed). Trends in Wound Care: Volume III. Salisbury: Quay Books, MA Healthcare Ltd, 2004;41-49. 2. Yager DR, Zhang LY, Liang HX, et al. Wound fluids from human pressure ulcers contain elevated matrix metalloproteinase levels and activity compared to surgical wound fluids. J Invest Dermatol. 1996;107(5):743-738. 3. Trengove NJ, Stacey MC, MacAuley S, et al. Analysis of the acute and chronic wound environments: the role of proteases and their inhibitors. Wound Repair Regen. 1999;7(6):442-452. 4. Vowden K, Vowden P. The role of exudate in the healing process: understanding exudate management. In: White, R (ed). Trends in Wound Care: Volume III. Salisbury: Quay Books, MA Healthcare Ltd, 2004;3-22. 5. European Wound Management Association (EWMA). Position Document: Topical negative pressure in wound management. London: MEP Ltd, 2007. 6. College of Nurses of Ontario. Decisions about procedures and authority. Pub. No. 41071. Toronto. Last retrieved October 21, 2014 from: http://www.cno.org/Global/docs/prac/41071_Decisions.pdf
<p>Related Tools (NOTE: these tools and their instructions can be found on the SWRWCP’s website: swrwoundcareprogram.ca)</p>	<ul style="list-style-type: none"> • Determining Healability Tool • SWRWCP’s Dressing Selection and Cleansing Enabler – HEALABLE WOUNDS • SWRWCP’s Dressing Selection and Cleansing Enabler – MAINTENANCE/NON-HEALABLE WOUNDS • Procedure: Wound Cleansing • Guideline and Procedure: Conservative Sharp Wound Debridement (CSWD) • NPUAP PUSH Tool 3.0 • Procedure: NPUAP PUSH Tool 3.0 • Guideline: The Assessment and Management of Bacterial Burden in Acute and Chronic Wounds • Guideline and Procedures: Wound Debridement (excluding

	conservative sharp debridement) • Criteria for Interdisciplinary Referrals
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