

# PALLIATIVE WOUND CARE

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RECOMMENDATIONS  
FOR THE  
MANAGEMENT OF  
WOUND-RELATED  
SYMPTOMS



# Palliative wound care

## Recommendations for the management of wound-related symptoms

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# Introduction

The World Health Organisation (WHO) estimate that each year 56.8 million people, including 25.7 million in the last year of life, need palliative care (PC).<sup>1</sup> However, it is estimated that only 14% of people who need palliative care currently receive it. Therefore, WHO has issued an urgent call for adequate national policies, programmes, resources and training on palliative care among health professionals to improve accessibility. Although this call relates to palliative care in general, it could by inference also apply to palliative wound care, a poorly understood and under-researched area of practice.

Defining palliative wound care is not without its challenges and indeed like other areas of practice it is difficult to gain consensus on definitions. However, in 2020 the International Association for Hospice and Palliative Care (IAHPC) developed a consensus-based definition of palliative care that focuses on the relief of serious health-related suffering and states: “PC is the active holistic care of individuals across all ages with serious health-related suffering because of severe illness and especially of those near the end of life. It aims to improve the quality of life of patients, their families and their caregivers”.<sup>1</sup> An important aspect of this definition is that it is not solely focused on end-of-life care but rather on health-related suffering and in so doing one could argue it broadens the scope for PC.

In wound care, while some definitions are available for what constitutes palliative wound care, these are not based on widespread consensus opinion or another methodological process and often refer to palliative wound care as only being applicable to end-of-life care. To address this, the European Task Force for Palliative Wound Care developed a new and updated definition of palliative wound care, based on a scoping review of 133 articles this is defined as: “person and family centred, holistic and interdisciplinary care of wounds that may heal, or not, or may be too onerous to treat; including but not limited to symptom control and management, for individuals who are often vulnerable and have impaired quality of life”.<sup>2</sup> This definition is well aligned with that of the IAHPC and explicitly recognises that it is not limited to end-of-life care. It is our view that palliative

wound care is not focused on healing, although this may be achieved, but on the relief of suffering.

<sup>i</sup> <https://who.int/news-room/fact-sheets/detail/palliative-care>

In general wounds may be categorised<sup>3</sup> as:

1. Healable wounds (healing possible and feasible)
2. Maintenance wounds (healing possible, in theory, but may not be feasible)
3. Non-healable wounds.

Thus, it is important to establish a management plan and desired outcomes that are aligned with patient and treatment goals and that is respectful of patient values. Symptom management is the cornerstone of PC and in relation to wounds there are several symptoms associated with wounds, the severity of which may vary based on aetiology, stage of the wound and patient factors. Symptoms might include pain, odour, exudate management, bleeding and itching. In addition, management of the peri-wound area and nutrition is of critical importance as is the prevention of progression or deterioration, including infection prevention.

This document aims to answer the call from WHO in developing resources for clinicians in PC and will review each of these wound-related symptoms as well as provide clinicians a set of up-to-date recommendations for practice. For this document, we will refer to palliative wound care (PWC) as an umbrella term to represent the three categories of wounds requiring a palliative approach.

# Abbreviations

AIDS	Acquired Immunodeficiency Syndrome	OEST	Oligo Element Sore Trial
CHF	Congestive heart failure	ONS	Oral nutrition supplements
COPD	Chronic obstructive pulmonary disease	ORC	Oxidized regenerated cellulose
EEMMA	Evaluation, explanation, management, monitoring and attentional to detail	PAINAD	Pain assessment in advanced dementia
EN	Enteral nutrition	PC	Palliative care
EPA	European Environmental Protection Agency	PCF	Pharyngoconjunctival fever
ESRD	End-stage renal disease	PEG	Percutaneous endoscopic gastrostomy
EWMA	European Wound Management Association	PEJ	Percutaneous endoscopic jejunostomy
FIDOL	Frequency, intensity, duration, offensiveness and location	PFC	Pharyngoconjunctival fever
FLACC	Faces, legs, activity, cry and consolability	PU	Pressure ulcer
FRS	Faces rating scale	PUSH	Pressure Ulcer Scale for Healing
GABA	Gamma-aminobutyric acid	PWC	Palliative wound care
HEN	Home enteral nutrition	QoL	Quality of life
IAHPC	The International Association for Hospice and Palliative Care	RIG	Radiologically inserted gastrostomy
IV	Intravenous	VR	Virtual reality
KOR	Kappa opioid receptors	WHO	The World Health Organization
MMPs	Matrix metalloproteinases		
MNA	Mini nutritional assessment		
MUST	Malnutrition Universal Screening Tool		
MOR	Mu opioid receptors		
NG	Naso-gastric		
NGT	Naso-gastric tube		
NJ	Naso-jejunal		
NK1	Neurokinin 1 receptor		
NO	Nitric oxide		
NPWT	Negative pressure wound therapy		
NRS	Nutrition risk screening		
OC	Oxidized cellulose		

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# 1. Pain management

Pain is defined by the International Association for the Study of Pain as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage”.<sup>4</sup> Regardless of aetiology, wound-associated pain is cited by patients as one of the worst symptoms associated with their wounds.<sup>5,6</sup> More than 50% of patients with malignant fungating breast lesions and 60% of patients with pressure ulcers report having severe wound-associated pain and that this pain is persistent.<sup>7,8</sup>

Interviews with patients with wounds of different aetiologies presents a picture of patients resigning themselves to having wound-related pain and a belief that there is little that can be done to manage it, but also a reluctance to take more medication beyond what they currently take.<sup>5</sup> The impetus, therefore, is on the need to develop novel, topical agents to manage this pain as currently there are only a small number of agents available for topical application and the strength of evidence to support their use is low.<sup>9</sup>

The EWMA document *Holistic Management of Wound-Related Pain*,<sup>10</sup> provides an up-to-date and comprehensive review on the topic of pain, including its causes, methods of assessment and approaches to management. The reader is advised to refer to this document with summary information provided below.

## Virtual reality for pain management

Alternative pain relief methods for wound care, such as virtual reality (VR), offer a non-invasive, drug-free approach to pain control.<sup>11</sup> VR works by creating immersive, interactive environments that distract patients from the physical sensations of wound care procedures, effectively reducing pain perception. Research has shown that the brain’s pain processing centres are less active when engaged in VR experiences, leading to significant reductions in pain, anxiety, and stress.<sup>11</sup> This is particularly beneficial for patients with chronic wounds, where frequent dressing changes or treatments can cause ongoing discomfort and distress.

In addition to lowering immediate pain, VR helps improve patient compliance with wound care by making the experience less traumatic, thus enhancing overall treatment outcomes.<sup>12</sup> VR is also customisable, allowing healthcare providers to tailor the experience to individual patient needs, such as a relaxing nature scene or a game to occupy the patient’s attention. This method not only offers relief but also can minimise the need for heavy reliance on opioids and other traditional analgesics, reducing the risk of side effects or dependence and should be regarded as a complementary tool alongside standard medical care.<sup>13</sup>

## Assessment

Pain assessment is most frequently reported using verbal rating scales of 0–10 or 0–100 with higher numbers indicating higher pain intensity.<sup>10</sup> These scales do not however, measure duration of pain, trigger factors, characteristics of pain or the need for breakthrough pain relief. These factors should be elicited by discussion of the symptom of pain with the patient. Pain is what the person themselves describe it as and exists at the level of intensity at which it is perceived.<sup>14</sup> This definition of the existence of pain is overshadowed if a person cannot describe either presence or process.

Pain assessment is complex and subjective, especially in individuals with cognitive impairment,<sup>14</sup> such as dementia. Dementia is a progressive condition affecting memory, reasoning, communication, and daily activities.<sup>15</sup> The EWMA document<sup>10</sup> recommends specific tools for assessing wound-related pain in cognitively impaired individuals, including the FRS (Faces Rating Scale), PAINAD (Pain Assessment in Advanced Dementia), Abbey Scale, and FLACC (Faces, Legs, Activity, Cry, and Consolability). Additionally, the Irish Hospice Society provides further guidance on general pain assessment, advocating for a simple mnemonic to help caregivers recognise and identify pain.<sup>16</sup>

- P – pick up on mood changes
- A – assess verbal cues
- I – inspect facial expressions
- N- notice body language

## Recommendations for pain management

The following recommendations are primarily based on the EWMA document *Holistic Management of Wound-Related*

*Pain*<sup>10</sup> and some other key text. Additionally, Table 1 summarises key considerations for pharmacological approaches to the management of wound-related pain.

*Box 1. Key considerations for pharmacological approaches to the management of wound-related pain*

### General principles

- Continuous and on-going assessment for the presence of pain using appropriate pain assessment tools used consistently.
- Assessment should include type, duration and intensity with specific consideration to identifying triggers for increased pain.
- Assess for the effectiveness of current strategies that consider duration of effect and the need for breakthrough analgesia.
- Frequency of assessment can be individualised to the patient but ideally at every dressing change.
- Consider the acceptability of side-effects of current methods.
- Identify the cause where possible and treat appropriately.
- Explore the potential role to use non-drug approaches, before proceeding to even simple analgesia.
- Where use of opioids is necessary, the lowest effective dose should be used, increasing the dose slowly and only if necessary to get the desired effect.
- Consider referral to a multidisciplinary team and/or pain specialist when pain cannot be controlled.
- Consider all non-pharmacological interventions as an adjunct to current therapy.

### Wound management principles

- Determine if pre-procedural analgesia is required and allow time for administration and effect.
- Review the current wound dressing regime and consider the use of atraumatic silicone-based dressings where possible.
- Manage exudate to reduce frequency of dressing changes.

Table 1. Key considerations for the pharmacological approach to wound pain management

Before choosing an analgesic strategy consider:				
Mode		Comments		
1. Topical over systemic treatment		<ul style="list-style-type: none"> <li>- Optimal access</li> <li>- Easy to apply</li> <li>- Fewer systemic unwanted effects</li> <li>- Fewer drug-drug interactions</li> </ul>		
2. Multimodal analgesia		<ul style="list-style-type: none"> <li>- Analgesic effect augmented while keeping low each unwanted effect</li> </ul>		
3. Explore for neuropathic pain		<ul style="list-style-type: none"> <li>- Consult guidelines for specific treatment</li> </ul>		
4. Referral of refractory cases to a pain clinic		<ul style="list-style-type: none"> <li>- Not available in most cases</li> </ul>		
Pharmacological alternatives				
Legal status	IV line in place	Type of pain	Alternatives	Comments
On-label	No	Procedural pain <sup>1</sup>	Emla cream	<ul style="list-style-type: none"> <li>- Apply 1g/cm<sup>2</sup>, wait for 30–45 min; only adults; only lower extremities ulcers</li> </ul>
		Rest pain <sup>2</sup>	Ibuprofen foam	<ul style="list-style-type: none"> <li>- For exudative wounds; children &gt; 12 years</li> </ul>
			Any systemic analgesic	<ul style="list-style-type: none"> <li>- Try multimodal analgesia: paracetamol; metamizole (forbidden in some countries); nonsteroidal anti-inflammatory agents; opioids</li> </ul>
	Yes	Procedural pain	Strong opioids	<ul style="list-style-type: none"> <li>- Fentanyl family: fentanyl, remifentanyl, alfentanil, sufentanil</li> <li>- Keeping antidote (naloxone) at hand</li> </ul>
			Local anaesthetics	<ul style="list-style-type: none"> <li>- Local anaesthesia</li> <li>- Nerve or neuroaxial anaesthetic blocks (best quality of anaesthesia, but requires specialised personnel)</li> <li>- Lidocaine bolus iv</li> </ul>
		Rest pain	Any systemic analgesic	<ul style="list-style-type: none"> <li>- Try multimodal analgesia: paracetamol; metamizole (forbidden in some countries); nonsteroidal anti-inflammatory agents; opioids</li> </ul>

Pharmacological alternatives				
Legal status	IV line in place	Type of pain	Alternatives	Comments
Off-label	No	Procedural pain	Emla cream	- Age <18 years; wounds not located in lower extremities
			Topical local anaesthetics	- Applied by irrigation or aerosol; also for neuropathic pain - Fastest & weakest: lidocaine, mepivacaine - Lowest & more potent: bupivacaine, ropivacaine, tetracaine - Warming and alkalinising enhance effectiveness
			Topical sevoflurane	- Cover the wound bed with the lowest dose (greenhouse effect)
			Inhaled nitrous oxide	- As an adjuvant
			Inhaled methoxyflurane	- Only approved in few countries so far
		Rest pain	Local anaesthetics	- Applied by irrigation or aerosol in open wounds
			Topical opioids	- Gel of morphine, diamorphine, methadone ...
			Topical sevoflurane	- Analgesic effect expected to last >8–10h in frail patients - Suggested antimicrobial and pro-healing effect
			Topical ketamine	- Check for psychiatric unwanted effects if chronic use
		Yes	Procedural pain	Local anaesthetics
	Ketamine			- Low dose as an adjuvant
	Rest pain		Local anaesthetics	- Lidocaine continuous infusion

1. Procedural pain is induced by human intervention during healthcare procedures
2. Rest pain occurs during inactivity and often signals chronic or severe pathology

### Summary

Topical treatments for pain are preferred over systemic analgesics because they are easy to apply and provide an optimal access to the painful target. Moreover, individuals requiring palliative care are usually frail and take multiple

medications, making them more prone to unwanted effects caused by systemic analgesics and drug interactions. The approved topical options to treat painful wounds are currently scarce. Classically, they are limited to Emla brand anaesthetic creams and ibuprofen slow-release dressings.

## 2. Odour management

Odour is the characteristic of a material or chemical that one can smell. Some odours are caused by single chemicals, but many odours come from a mixture of chemicals, for example coffee is made up of over 300 different odorous chemicals which combine to create the coffee smell.

Malodour is associated with an increased bacterial burden, particularly involving anaerobic and certain gram-negative organisms.<sup>17</sup> In malignant wounds the cause of the malodour may be due to bacteria, high levels of exudate or poorly vascularised tissue which allows aerobic and anaerobic bacteria to rapidly proliferate and decompose serum proteins present in the wound fluid.<sup>18</sup> Among patients with malignant fungating breast lesions, odour is noticeable with the presence of strict anaerobes, polymicrobial colonisation and increased bacterial counts greater than  $10^5$  colony-forming units per gram of tissue samples.<sup>7,19</sup>

Odour sensing olfactory cells are linked to areas of the brain that control emotions and memory processes. Offensive odour can, therefore, have impacts on the health and well-being of humans, especially if one is subjected to the odour for extended periods of time. At sufficiently high concentrations odorous compounds may have a direct effect on human health or an individual's health may suffer indirectly due to stress associated with odour impact.<sup>17,18,20</sup>

Wound odour is cited by both patients and health care professionals as one of the worst and most distressing symptoms associated with their wounds.<sup>17,18,21,22</sup> When present, it can cause isolation, depression and reduced quality of life.<sup>20</sup> Patients describe it using repulsive terms such as 'decaying', 'rotting meat', 'putrid', 'sickly disgusting' underscoring the distressing nature of this symptom.<sup>20</sup> Worryingly, patients report 'resigning' themselves to having wound related odour and believe there is little that can be done about it.<sup>20</sup> This problem must be a call to action for the research community, as it is of direct importance to patients and indicates unmet clinical needs.

### Assessment of odour

In an international survey of 1455 clinicians, only 12% reported assessing odour, yet 83% report it as being a major problem for both patients and caregivers.<sup>21</sup> Methods to assess wound odour are not standardised and focus mainly on intensity of odour.<sup>23</sup> Methods include distance from the wound at which odour is detected, rating scales of 0–5 and 0–10. Importantly, patient perception and clinicians' ratings and perception may differ, therefore, it is worth noting who is making the assessment.

A recent systematic review of interventions to manage wound-related odour noted a lack of research at the level of randomised controlled trials.<sup>23</sup> Only five studies met the inclusion criteria and were all small sample sizes ( $n = 11–41$  participants). Interventions included metronidazole, silver, green tea and polyhexanide gel. The review concluded that metronidazole and Silver may have a role in controlling odour, but the strength of evidence is low.

### Recommendations for odour management

The following recommendations are based on patient recommendations,<sup>20</sup> systematic reviews,<sup>23,24</sup> general literature<sup>17,18,22</sup> and anecdotal reports. However, it must be noted that the strength of evidence supporting these recommendations is low. Managing wound odour effectively often requires a combination of approaches rather than a single intervention. Key strategies include local wound management to address the source of odour, secondary dressings to contain and absorb exudate, systemic approaches such as antibiotics or other medical therapies when infection is present, and environmental control measures to improve air circulation and minimise odour perception. These approaches are summarised as follows:

#### Local wound management

- Cleanse the wound to remove slough, debris, exudate and build-up of bacteria using appropriate methods based on the status of the wound.

- Debridement of necrotic tissue may be an option in some cases, but careful consideration must be given to the overall status of the wound, underlying vascularity, method of debridement and treatment goals.
  - Change dressings frequently to remove soiled dressings and prevent strike through of exudate and odour.
  - Ensure appropriate and adequate dressing materials are applied to manage exudate to prevent strike through.
  - Topical application of metronidazole in gel format (0.75 – 1% w/v) or irrigation of the wound with diluted metronidazole. Avoid crushed metronidazole tablets as these will irritate the wound and can increase pain.
  - Topical application of honey in a dressing or as a gel. However, if there is excessive exudate or the cause of the wound is arterial, honey may increase the level of exudate or pain and should be avoided.
  - Silver dressings may have some effect on odour management.<sup>23,24</sup>
- additional distress and if used over a long time can provide a more challenging environment for the patients and their families.
- Odour eliminating sprays have been reported anecdotally as having some effect. These sprays breakdown an odour and thus improve the environment. Ensure that these sprays do not have a scent of their own, it is better to use a neutral spray.
  - Shaving foam. There are reports that shaving foam sprayed into a bowl and left in a room can help to eliminate odour. Change as often as required.
  - Cat litter. Using cat litter in a tray in the room can help to eliminate odour. Note, it may be useful to cover with a muslin cloth to prevent spillage during room cleaning. Please check the acceptability of using this product with the patient. An alternative is the use of odour control rocks.
  - Changing bed linen or room curtains can reduce odour which can linger in fabrics.

### Secondary dressings

- Charcoal- and cinnamon-based dressings can be used to help manage wound odour.
- Charcoal dressings must be fitted as a sealed unit to prevent the volatile chemicals escape into the air.<sup>25</sup> Some charcoal dressings will be deactivated when wet and therefore may not be suitable in the presence of excessive exudate.

### Systemic approaches

- Systemic antibiotics are used to reduce bacterial colonisation and thereby to control the offensive odour from volatile metabolic end-products.<sup>25</sup> One of the limitations of systemic antibiotics is their side effects and the need for sufficient blood supply to the wound for them to be effective. In line with antimicrobial stewardship principles, the use of systemic antibiotics in wound care should be judicious to prevent the development of antibiotic resistance and to ensure optimal patient outcomes.<sup>26</sup>

### Environmental control

- Avoid burning incense, candles or using essential oils. These do not breakdown an odour and simply add another odour to the environment which can cause

### 3.

## Exudate management

Exudate management is a critical aspect of wound care, particularly in palliative settings where comfort and quality of life are key. Exudate plays a fundamental role in the physiological wound healing process. It consists predominantly of water but also contains electrolytes, nutritional components, proteins, pro-inflammatory cytokines, proteolytic enzymes such as matrix metalloproteinases (MMPs), growth factors, metabolic by-products, and various cellular constituents like neutrophils, macrophages, and platelets.<sup>27,28</sup> While exudate often contains microorganisms, their presence does not always indicate an infection.<sup>29</sup> Typically, exudate is a transparent, light, amber-coloured fluid with a watery texture and no odour, although certain dressings can produce distinct olfactory characteristics.<sup>28</sup>

Imbalances in exudate production or composition can hinder healing and exacerbate wound complications.<sup>30</sup> Excessive exudate accumulation can lead to maceration, infection, and delayed healing, underscoring the importance of efficient exudate management.<sup>31,32</sup> In PWC, effective exudate management requires the use of dressings that remove excess exudate, protect wound edges, and maintain a moist healing environment.<sup>33</sup> Clinicians can quantitatively assess wound exudate using tools such as the Pressure Ulcer Scale for Healing (PUSH) tool<sup>34</sup> or the Bates-Jensen Wound Assessment Tool (BWAT).<sup>35</sup> The PUSH tool categorises exudate drainage into four levels—none, light, moderate, and heavy—while the BWAT evaluates exudate on a 25% quadrant-based metric. Both tools require a skilled clinician for accurate assessment, highlighting the need for adequate training. Table 2 summarises the various descriptors for wound exudate and how they relate to the stage of wound healing or wound complications.

Beyond clinical factors, uncontrolled exudate leakage can have profound psychological effects on patients and caregivers. The persistent presence of exudate and the challenges of managing leakage can lead to emotional distress, including feelings of embarrassment, shame, and frustration.<sup>37</sup> The visible and sometimes odorous nature of exudate can cause social isolation and contribute to

feelings of loneliness and depression.<sup>38</sup> Caregivers, too, face significant psychological burdens. Witnessing a loved one's discomfort and distress can evoke feelings of helplessness, anxiety and burnout, particularly when heavy exudate output complicates wound care.<sup>39,40</sup> Wounds can range from being non-exudative to highly exudative, with potential outputs of up to one litre per day causing significant management challenges.

Qualitative research shows challenges associated with exudate management, where bodily fluids normally confined internally were discharged and leaked externally, breaking the usual body boundaries.<sup>41</sup> Heavy exudation is common in palliative wounds, especially in cases of malignant fungating wounds, which may extend into the lymphatic system, causing skin breakdown. Similarly, exudation may result from tumour necrotic outgrowths or fistulas, complicating wound management and increasing patient distress.<sup>42</sup> Maceration of the peri-wound skin may result, potentially exacerbating wound enlargement.

Managing frequent dressing changes in wounds requiring a palliative approach poses a significant challenge. However, selecting a suitable dressing regimen is paramount, as it can greatly impact both the wound's condition and the patient's quality of life.<sup>22</sup> Despite advancements in wound care, there remains a lack of ideal dressing options for palliative wounds. Additionally, many advanced wound dressings are not available in sizes or configurations suitable for these wounds. Moreover, the majority of advanced wound dressing designs are based on the concept of moist wound healing,<sup>43</sup> primarily developed for acute wound management, which may not translate effectively to palliative wounds. These wounds are frequently overly moist and their lack of progress in healing presents distinctive difficulties. When wounds of small diameter produce a significant amount of exudate, employing an ostomy bag to gather the exudate is advised. Many manufacturers of ostomy bags provide their own specialised additives for odour neutralisation.

## Recommendations for exudate management

Overall, in PWC, optimising exudate management involves selecting dressings that effectively remove excess exudate, protect wound edges, and maintain a moist healing environment.<sup>44</sup> Regular wound assessments, incorporating evaluation of exudate characteristics, enable healthcare providers to monitor progress and adjust treatment plans accordingly.<sup>36</sup> Collaborative decision-making and patient education are essential components of comprehensive

wound care, ensuring patient engagement and adherence to treatment protocols.<sup>45</sup> The following list outlines key dressing options and skin protection strategies to aid in exudate management:

### Wound dressings:

- **Superabsorbent dressings:** ideal for moderate to heavy exudation, superabsorbent dressings efficiently absorb and retain fluid, minimising the risk of maceration and promoting a moist wound environment conducive to healing.

Table 2. Types of wound exudate<sup>36</sup>

Type	Colour/opacity	Consistency	Comments
Serous	Clear, amber or straw-coloured	Thin, watery	<ul style="list-style-type: none"> <li>■ Normal during inflammatory and proliferative phases of healing</li> <li>■ An increase in serous exudate may be a sign of infection</li> <li>■ In excessive amounts may be associated with congestive cardiac failure, venous disease, malnutrition or due to fluid draining from a urinary or lymphatic fistula</li> </ul>
Serosanguineous	Clear, pink to light red	Thin, slightly thicker than water	<ul style="list-style-type: none"> <li>■ May be considered normal during inflammatory and proliferative phases of healing</li> <li>■ Pinkish due to the presence of red blood cells</li> <li>■ May also be found post-operatively or after traumatic dressing removal</li> </ul>
Sanguineous	Red	Thin, watery	<ul style="list-style-type: none"> <li>■ Reddish due to the presence of red blood cells</li> <li>■ May indicate new blood vessel growth or disruption of blood vessels</li> <li>■ May be associated with hypergranulation</li> </ul>
Seropurulent	Cloudy, creamy, yellow or tan	Thin	<ul style="list-style-type: none"> <li>■ Serous exudate containing pus</li> <li>■ May also be due to liquefying necrotic tissue</li> <li>■ May signal impending infection</li> </ul>
Fibrinous	Cloudy	Thin, watery	<ul style="list-style-type: none"> <li>■ Cloudy due to the presence of fibrin strands</li> <li>■ May indicate inflammation, with or without infection</li> </ul>
Purulent	Opaque, milky, yellow, tan or brown; sometimes green	Often thick	<ul style="list-style-type: none"> <li>■ Mainly pus (neutrophils, inflammatory cells, bacteria) and may include slough/liquified necrotic tissue</li> <li>■ Indicates infection</li> <li>■ Green colouration may be due to infection with <i>Pseudomonas aeruginosa</i></li> <li>■ May be associated with odour</li> </ul>
Haemopurulent	Reddish, milky, opaque	Thick	<ul style="list-style-type: none"> <li>■ Mixture of blood and pus</li> <li>■ Often due to established infection</li> </ul>
Haemorrhagic	Red, opaque	Thick	<ul style="list-style-type: none"> <li>■ Mostly due to the presence of red blood cells and indicative of increased capillary friability or trauma to the wound</li> <li>■ May indicate bacterial infection</li> </ul>

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- **Alginates and gelling fibre dressings:** these dressings are suitable for absorbing exudate while providing a moist wound interface. Alginates form a gel upon contact with exudate, facilitating autolytic debridement and promoting granulation tissue formation.
- **Foam dressings:** foam dressings are effective for wounds with medium exudate levels. They provide cushioning and protection to the wound bed while absorbing excess fluid, maintaining a moist environment for optimal healing.
- **Negative pressure wound therapy (NPWT):** in select cases, NPWT may be indicated for palliative wounds to enhance patient comfort and promote granulation tissue formation. However, caution is warranted in the presence of fistulas to prevent exacerbation of fluid leakage. It is important to ensure that the wound edge is protected from maceration, for example, with a barrier product.

**Skin and wound protection (see also peri-wound management chapter):**

- Prevent maceration of the peri-wound skin by selecting dressings that protect wound edges through absorbing and retaining wound exudate and manage excessive moisture effectively.
- Regularly apply barrier products to shield the surrounding skin from prolonged exposure to exudate.

**Fistulas**

A fistula refers to a tubular linkage between two hollow organs or between a bodily cavity and the external surface.<sup>46</sup> An enterocutaneous fistula specifically denotes a connection between a hollow organ and the skin. Various factors can lead to the formation of fistulas, such as surgical complications, infections, radiotherapy, or the presence of a rapidly proliferating tumour. The management of fluid drainage from fistulas presents unique challenges, requiring preventive measures such as barrier products to prevent skin excoriation. Collecting discharge in closed ostomy bags and addressing odour are essential components of fistula management. Balanced nutrition and hydration are also vital for maintaining overall well-being.<sup>47</sup>

**Recommendations for fistula management**

The following outlines key recommendations for fistula management:

- Assess potential factors contributing to fistula formation, such as surgical complications, infections, radiotherapy effects, or tumours, to guide treatment planning.
- Use barrier products to prevent skin excoriation caused by fluid drainage from fistulas.
- Collect discharge from fistulas in closed ostomy bags to ensure effective management and hygiene.
- Implement strategies to address and minimise odour associated with fistula discharge as part of comprehensive care.

## 4. Bleeding

There are only few studies that evaluate bleeding frequency and volume in malignant fungating wounds.<sup>48,49</sup> In one retrospective study of 90 oncology patients with tumour related wounds, minor bleeding was reported in 39% of situations, with significantly higher bleeding occurring in malignant fungating wounds. Haemorrhage occurred in 19% of these patients and 2% died because of the haemorrhages. Dressing changes related to malignant wounds have also been reported to result in bleeding 80% of the time.<sup>50</sup>

Malignant fungating wounds are a common source of bleeding due to the increased and irregular vascularity of the underlying tumour. Tumours may cause direct vessel invasion, fragile and friable tissue formation, in addition, therapies may lead to thrombocytopenia, aplastic anaemia, liver coagulopathy, and/or disseminated intravascular coagulation.<sup>51</sup> Other palliative wound types that may experience bleeding include pressure injuries, leg ulcerations and diabetic foot ulcers, if the wound deteriorates with erosion into local blood vessels. A fragile patient requiring palliative care may also experience traumatic wounds, such as skin tears during their daily care routines that result in acute bleeding.<sup>52</sup>

The mainstay of bleeding control is the application of direct pressure with a dressing, from a few minutes to up to 15 minutes, and it will depend on specific medications such as anticoagulants that may cause excessive bleeding.<sup>53</sup> Multiple types of dressings have been evaluated, primarily in animal models and traumatic wounds, for their ability to promote haemostasis. There are passive dressings and dressings with bioactive materials that may be suitable for arresting bleeding. These include cotton, oxidised cellulose (OC), and oxidised regenerated cellulose (ORC). Cotton gauze has been used extensively in military units; haemostasis is achieved via platelet activation and aggregation through hydrophilicity and a negative surface charge.<sup>54</sup> The limitation of using cotton gauze is adherence to the wound bed, which can trigger further bleeding, possibly severe, with removal. OC derived from cotton or ORC from wood pulp both have an acidic pH thought to

impart platelet activation, aggregation, and stimulation of the intrinsic pathway of coagulation.<sup>55</sup> These substrates are biodegradable, which allows them to remain in place in the wound bed. Cotton, OC and ORC dressings are readily available, and are often combined with a bioactive material to promote further haemostasis.

Bioactive materials that promote haemostasis include thrombin and fibrinogen, collagen, gelatine, alginate, and chitosan. Thrombin and fibrinogen react to form fibrin and are available as a patch which is highly effective at inducing haemostasis, but is an expensive product and it has a risk of immunogenicity and viral contamination.<sup>54,55</sup> Collagen and its denatured version, gelatine, serve as a substrate for the platelet pathway, and have shown the ability to activate factor XII and factor IX.<sup>56</sup> Alginate that derives from brown algae has negatively charged uronic acid that becomes a gel in the presence of calcium. The calcium is believed to be responsible for haemostasis as a cofactor for platelet activation. Despite the ability to promote haemostasis, alginates have been associated with more frequent bleeding with dressing changes.<sup>50,55</sup> Chitosan is a potent haemostatic agent that does not rely on the patient's own clotting mechanisms, making it an ideal choice for individuals with clotting disorders. Chitosan forms cationic clusters that interact with anions of the red blood cells, resulting in red blood cell agglutination that forms a physical plug mechanism for haemostasis. Chitosan also induces platelet aggregation.<sup>55,57</sup>

All the above-mentioned dressings have been found to be effective with light to moderate levels of bleeding. In the case of haemorrhagic wounds, kaolin-coated polyester roll gauze has been found to be highly effective and is removable from the wound easily. Smectite granules are also very effective at achieving haemostasis but leave behind granules in the wound that are difficult to remove.<sup>58,59</sup>

Topical adrenaline is controversial but when used with caution can be helpful. Silver nitrate sticks for small bleeding spots and the use of tranexamic acid may also help.

## Recommendations for management of bleeding

The following points outline recommendations for management of bleeding wounds:

- Instruct patients and their caregivers on the use of direct pressure to stop bleeding. Keep in mind that patients on anticoagulants will take significantly longer to clot.
- If bleeding fails to stop or is very severe then emergency services may be required.
- Consider issuing a haemostatic-type passive dressing for the patient and caregivers to have at home for when minor bleeding is a symptom and in anticipation of further and potentially more severe bleeding.
- Offer patients with clotting disorders a chitosan-based dressing.

- Use caution with alginate dressings due to bleeding during dressing changes; opt for collagen and gelatine foam dressings for minor to moderate bleeding episodes.
- If there are anticipated situations that may result in wound haemorrhage, keep kaolin-coated polyester roll gauze on hand.

Effective bleeding control is crucial in wound management, particularly for patients on anticoagulants or those with clotting disorders. Various strategies and dressings can be used to promote haemostasis, ranging from direct pressure application to bioactive and haemostatic dressings. The following table outlines key approaches for managing bleeding wounds, including their mechanisms, benefits, and potential risks.

Table 3. Management of bleeding wounds

<b>Direct pressure application</b>	<ul style="list-style-type: none"> <li>• mainstay for bleeding control</li> <li>• duration: a few minutes or up to 15 minutes, may have to repeat</li> <li>• medications like anticoagulants may prolong bleeding</li> <li>• seek emergency care if wound fails to stop bleeding after 30 minutes of direct pressure</li> </ul>
<b>Passive dressings</b>	<p><b>Cotton gauze:</b></p> <ul style="list-style-type: none"> <li>• negative surface charge causes platelet activation and aggregation</li> <li>• can cause further bleeding upon removal</li> </ul> <p><b>Oxidized Cellulose (OC) and Oxidized Regenerated Cellulose (ORC):</b></p> <ul style="list-style-type: none"> <li>• biodegradable, atraumatic</li> <li>• acidic pH activates platelets and the intrinsic coagulation pathway</li> </ul>
<b>Bioactive dressings</b>	<p><b>Thrombin and fibrinogen:</b></p> <ul style="list-style-type: none"> <li>• react to form fibrin, highly effective, available as patches</li> <li>• expensive, potential for immunogenicity and viral contamination</li> </ul> <p><b>Collagen and gelatin foam:</b></p> <ul style="list-style-type: none"> <li>• activate factor XII and IX in the platelet pathway</li> <li>• collagen and gelatin foam dressings are affordable and effective</li> </ul> <p><b>Alginate:</b></p> <ul style="list-style-type: none"> <li>• derived from brown algae, becomes a gel in presence of calcium, which promotes haemostasis</li> <li>• risk: frequent bleeding during dressing changes</li> </ul> <p><b>Chitosan:</b></p> <ul style="list-style-type: none"> <li>• potent haemostatic agent independent of patient's clotting mechanisms</li> <li>• forms cationic clusters that agglutinate red blood cells for a physical plug</li> <li>• ideal for individuals with clotting disorders.</li> </ul>
<b>Haemostatic dressings for haemorrhagic wounds</b>	<p><b>Kaolin-coated polyester roll gauze:</b></p> <ul style="list-style-type: none"> <li>• highly effective and easily removable from wounds.</li> </ul> <p><b>Smectite granules:</b></p> <ul style="list-style-type: none"> <li>• very effective but difficult to remove from wounds.</li> </ul>

# 5. Peri-wound area management

## Defining the peri-wound area

In 2021, the International Skin Tear Advisory panel, following a review of the literature and a consensus process, defined the peri-wound area as, “the area around a wound that may be affected by wound-related factors and/or underlying pathology”.<sup>60</sup> This definition does not make explicit reference to the distance from the wound that constitutes the peri-wound area as it argues that such a demarcation line is impossible to quantify as the size of the area may be related to the underlying wound pathology, dressing, device, treatment or other factors.

## Types and causes of damage

Types of peri-wound skin lesions may include maceration, denudement, excoriation, erosion, skin stripping, contact, and allergic dermatitis.<sup>60</sup> Maceration is the softening or wetting of the skin; the result of prolonged exposure to excessive moisture including wound exudate.<sup>61,62</sup> Excoriation is a loss of the epidermis and a portion of the dermis due to scratching or an exogenous injury.<sup>63</sup> Trauma can also be caused by repeated application and removal of adhesive tapes and bandages.

When peri-wound skin is exposed to exudate, the *stratum corneum* absorbs the fluid and swells.<sup>61</sup> Overhydration and molecules within the exudate (such as proteases) lead to a softening and decreased adhesion of the epidermal cells and increases the risk of maceration. Increased hydration of the *stratum corneum* increases the risk of friction damage, infection and skin breakdown and consequently contributes to enlargement of the wound or delayed wound healing.<sup>64</sup>

Overhydrated skin can be slow to heal and has increased risk of infection, friction and skin damage, all of which can lead to wound enlargement.<sup>64</sup> Exudate impacts the pH of the peri-wound skin and alters the microbial colonisation of the skin surface, increasing the risk for reduced skin barrier function.

The diverse microbial colonisation of malignant wounds leads to biofilm development.<sup>65</sup> Colonising bacteria are responsible for peri-wound skin damage with bacterial

changes larger than 10<sup>5</sup>/g bacteria correlated with increased pain and exudate.<sup>18,65</sup> Bacterial metabolites in malignant wound exudate have been thought to contribute to the degradation of the peri-wound skin.<sup>66</sup>

## Recommendations

We have reviewed multiple international guidelines for wound management and based on these have synthesised the following recommendations as outlined below. It should be noted that the level of evidence to support many of these recommendations is at the level of expert opinion, underscoring the need for research in this area.

Note: throughout many of the guidelines, absorbent dressings such as foams and superabsorbers are recommended. These can be effective in containing exudate, but caution must be exercised in the length of time a dressing is left in place. A superabsorber dressing when saturated with exudate can be quite heavy and may exert a pulling or dragging effect on the wound and cause pain for the patient, thus, close monitoring of duration of effect and need for dressing changes should be encouraged.

## Assessment

Assessment is the foundation to good wound management and includes assessment of the peri-wound area.<sup>60,61,67,68</sup> The condition of the peri-wound skin provides important

### Box 2. Risk factors for damage to peri-wound area

- the amount of exudate and presence of heparin-binding proteins<sup>61</sup>
- bacteria and associated toxins<sup>61</sup>
- histamine produced by specific bacteria<sup>61</sup>
- proteolytic enzymes such as MMPs<sup>61</sup>
- inflammatory cytokines in the wound exudate<sup>61</sup>
- occlusion due to dressings
- repeated removal of dressings.

information about the status of the wound and can influence choice of intervention and treatment.<sup>69</sup> Peri-wound-specific assessment should include<sup>60,64,68,69</sup>:

- skin integrity
- general condition of the skin, such as moist, thinned/thickened, discoloured
- inspection for the presence of macules, papules, plaques, vesicles, scales, erosions, excoriations and callus
- size of peri-wound area – relating to wound edges
- temperature – cool, warm, hot. Increased temperature in the peri-wound area may indicate infection in the wound
- erythema/cellulitis
- maceration/erosion/skin stripping. Pale, white or grey tissue may be indicative of prolonged exposure to moisture<sup>69</sup>
- swelling/oedema/induration: Induration (an abnormal firmness of the tissue) and oedema are indicative of infection
- sensation, because foot wounds, spin cord injury and other conditions can reduce sensation
- ask the patient about any peri-wound related symptoms such as itch, pain and burning

## Cleansing

Cleansing is the removal of wound exudate, surface contaminants, bacteria and remnants of previous treatments from the surrounding skin. It facilitates visualisation of the skin and identification of any adverse events. Cleansing of the wound will remove exudate and topical product residue that may aggravate the peri-wound area.<sup>67</sup> When the skin is already damaged, cleansing should proceed with an added degree of care and caution to prevent further damage or skin breakdown.

Proper skin cleansing is essential for maintaining skin integrity and preventing irritation or infection. The following guidelines outline best practices for effective and safe skin cleansing:

- When using water, it should be tepid, potable water (water suitable for drinking)<sup>68,70</sup>
- Skin cleansing is best achieved using products that do not need rinsing and once used, are allowed to fully dry before dressing application<sup>70</sup>
- The pH of the skin is around 4.5 to 5.5, so cleansers within this range are best suited
- After cleansing, the skin should be gently dried using non-irritating products but never rubbed or blow-dried<sup>60,70</sup>

## Skin protection

Skin protection products help to prevent or minimise direct contact between the skin and body fluids.<sup>70</sup> Referred to as barrier products, these usually contain viscous, lipophilic ingredients such as petrolatum or paraffin, or film formers such as silicones and acrylates and can be applied using cloths or sprays.<sup>70</sup> While zinc (oxide) ointments are also suitable for skin protection, many topical zinc products, in particular viscose zinc pastes, may be difficult to remove and make assessment of the peri-wound are more difficult. Soft zinc creams are an alternative since they can be applied in thin and transparent layers.<sup>70</sup> Skin protection products may also protect against skin stripping or skin tears due to removal of medical adhesives.<sup>68</sup> The peri-wound skin should be kept dry and free from maceration using a wound dressing that remains in contact with the wound bed and absorbs the anticipated amount of exudate and/or by using a skin barrier product.<sup>68</sup>

## Treating the cause

Identifying the cause of damage to the peri-wound area may require referral to specialists if the cause cannot be easily determined. A causality-based approach should be used in the development of a treatment plan.<sup>61</sup> In the case of venous leg ulcers, venous eczema should be treated promptly and may require further investigation.<sup>67</sup>

Effective wound and skin management requires a combination of exudate control, skin protection, and appropriate cleansing methods. The following recommendations outline key strategies to maintain skin integrity and support optimal wound healing:

- Exudate management by a causal treatment approach: may include foam dressings to the wound

or superabsorbers (changed as necessary to prevent maceration)<sup>61,70</sup>

- Skin protection should be ensured by using barrier products, such as creams and atraumatic dressings
- Avoid skin sensitising ingredients and potential allergens<sup>18,61,67</sup>
- Rehydrate skin if dry<sup>61</sup>
- Remove non-viable tissue, if aligned with treatment goals<sup>61</sup>
- Cleanse intact skin with hypoallergenic, non-irritating products<sup>70</sup>
- Avoid water for cleansing but if necessary, use sparingly and it must be tepid<sup>70</sup>
- Special pre-moistened cleansing wipes or disposable cleansing systems may be used<sup>70</sup>
- In cases of severely exudative wounds, temporary use of super-absorbers or negative-pressure systems may be indicated for exudate management<sup>70</sup>
- Avoid products (such as creams, ointments) that interfere with dressing adhesion, or use a larger dressing with at least 5/6 cm of intact skin surface for adhesion; avoid excess barrier products
- Use antimicrobial cleansing for skin with folliculitis and avoid frequent dressing removal
- Consider using a topical steroid for hypersensitivity responses for a short duration of time until inflammation has subsided
- Consider using non-adhesive dressings with tubular retention bandages
- Consider using low-trauma adhesive products
- Remove adhesive dressings slowly at a low angle and consider using the stretch release method
- Consider using an adhesive remover
- Rotate sites where tape is applied and avoid applying with tension

### Adhesive damage to the peri-wound area

Many wound dressings are formulated with an adhesive border as a means of providing a retentive dressing and for containment of exudate and odours. However, many adhesives may be too severe for fragile peri-wound skin and repeated application and removal can cause damage, often referred to as medical adhesive-related skin injury.<sup>71</sup> Their use should be monitored and decisions to continue or discontinue their reapplication should be based on the condition of the skin and the level of pain, if any, associated with their removal. When applied, the following factors can help to protect the peri-wound skin from adhesive damage (adapted from LeBlanc et al<sup>60</sup> and Barton et al<sup>72</sup>).

### Protecting the peri-wound from adhesive damage

Maintaining skin integrity and ensuring proper dressing adhesion are essential in wound care. The following recommendations provide guidance on skin protection and dressing application for optimal healing:

- Consider using skin protection films (such as protective barrier films or cyanoacrylate).

## 6. Pruritis

### Definition

Itch (Pruritis) is “an unpleasant cutaneous sensation which provokes the desire to scratch”.<sup>73,74</sup> Pruritis is known to affect the quality of life of patients and carers<sup>75</sup> furthermore wound-related pruritis can occur in palliative wounds. However, it is an underestimated and understudied symptom. The lack of understanding of this phenomenon represents a barrier for adequate management.

### Scale of the problem

A prospective study involving 200 patients with chronic wounds of different aetiologies (traumatic, pressure, neuropathic, venous, arterial, mixed and others) found that 28% of patients had wound-related pruritis.<sup>76</sup> Lower extremity wounds were more likely to be itchy than upper body wounds and venous ulcers were significantly more itchy than other types of chronic wounds. Wound duration did not predict the occurrence of itching; however, pruritis was more prevalent in larger wounds, with oedema, more granulation tissue or necrotic tissue.<sup>76</sup>

In the palliative care setting, in a series of 67 patients with malignant fungating wounds, pruritis was associated with 5.2% of the lesions and was the sixth most common symptom reported. Patients experiencing this symptom

reported this both within the wound itself as well as within the peri-wound area.<sup>77</sup> Although there are still doubts about the pathophysiology of wound pruritis, it appears to be mainly associated with the inflammatory process [pruritoceptive] and/or nerve damage [neuropathic].<sup>78</sup>

### Pathophysiology of pruritis

There are thought to be two broad categories related to the pathophysiology of pruritis– pruritoceptive (cutaneous) and neuropathic (afferent neuronal pathways).

Pruritoceptive pruritis arises in the skin. Pruritogenic molecules such as interleukin 31(IL-31), histamine, b-alanate, serotonin, proteases, nerve growth factor, Substance P and proinflammatory cytokines released in any wound, acute or chronic, activate pruriceptors on sensory neurons in the skin. These are non-myelinated C fibres which are a subset of those involved in pain pathways. These specialised C fibres synapse with second-order neurons in the dorsal horn of the spinal cord. Within the dorsal horn of the spinal cord there are several neurotransmitters acting at receptors and channels mediating the transmission – such as NK1, neuromedin B, natriuretic peptide receptor A, opioid receptors. After communication with a complex collection of spinal interneurons, a signal is sent to the thalamus in the

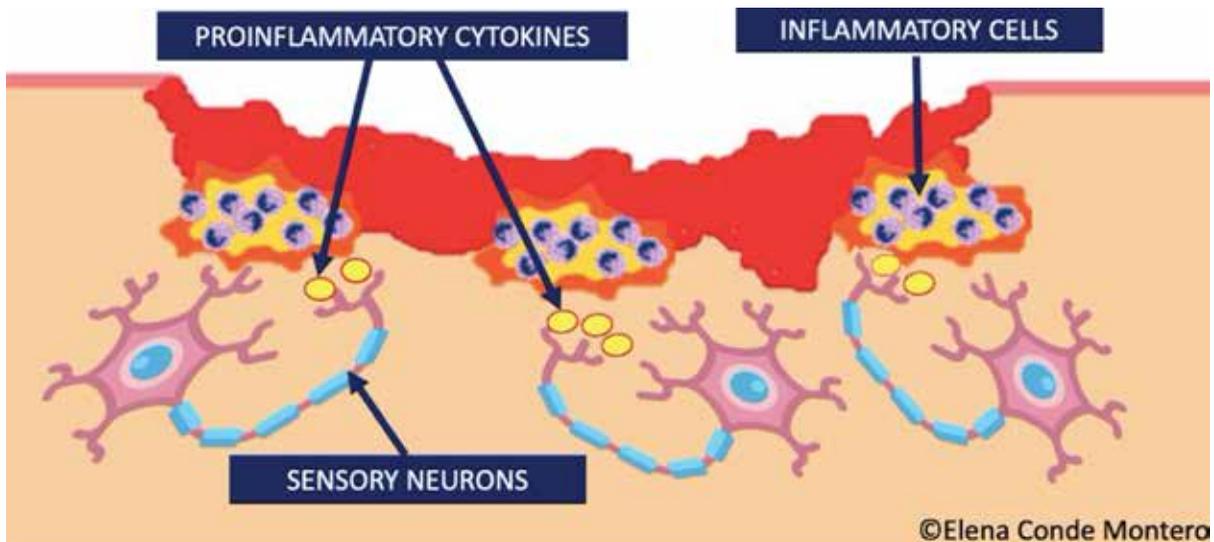


Figure 1. Elements involved in the neuro-immunological process of pruritis in wounds

brain via the spinothalamic tract where the itch sensation is recognised and a response is generated, informed by a complex activation of different parts of the cerebral cortex. Instructions are then sent to the motor neurons responsible for scratching and, as in pain pathways, there is both a positive signaling pathway and a negative inhibitor mechanism for pruritis.<sup>79</sup>

Cold receptors peripherally inhibit the transmission of pruritis messages.<sup>80,81</sup> This is termed the neuro-immunologic pathway of pruritus and multiple cells appear to be involved, including white blood cells, keratinocytes and endothelial cells.

Interventions for management may centre around mechanisms that inhibit the positive pruritis response and/or enhance the normal inhibitory response. The central neurotransmitters for these pathways are complex and appear to share similar characteristics to pain pathways.

Chronic inflammation in the wound may also produce dysfunction and damage to pruriceptors. This increased sensitivity and excitability of damaged peripheral afferent fibers, which form neuromas, is called neuropathic itch, which is not triggered by external stimuli, but rather arises spontaneously. It is often accompanied by neural hypersensitivity manifesting as allodynia or dysesthesia (such as burning or stinging) in response to innocuous mechanical stimuli.<sup>82</sup>

## Aetiology of wound pruritis

Wound pruritus can arise from various factors related to the healing process and the wound environment. This can be from the healing process itself (as outlined above) and microenvironmental factors. These include dry scabs and perilesional dermatitis, as well as the presence of bacteria in the wound bed. As malignant fungating wounds are normally heavily exuding, pruritus may also be related to periwound moisture-associated dermatitis and maceration.<sup>83</sup> Both irritant contact dermatitis due to excess of exudate and allergic contact dermatitis due to allergens in topical products and dressings are frequent causes of wound pruritus.<sup>84</sup>

## Recommendations for pruritic management

Assessment and treatment of pruritus should be a fundamental aspect of wound management.<sup>85</sup> Using the

framework EEMMA helps to ensure a comprehensive approach.

E – evaluation

E – explanation

M – management

M – monitoring

A – attention to detail

The first step to manage pruritus in any wound, including palliative care wounds, is to rule out modifiable and treatable causes of itching, especially contact dermatitis.

General non-pharmacological approaches include:

- Temperature regulation – trying to avoid becoming overheated and for some people avoiding foods or drink which may cause vasodilation.
- Short nails to avoid additional abrasions.
- Attention to detail with regards to impact on quality of life and the nonphysical elements of the holistic assessment. The value of explanation cannot be underestimated.

Few studies have been performed specifically on the treatment of pruritus associated with palliative wounds. Consequently, most treatments prescribed for these patients have shown efficacy in other pruritic dermatoses in which there is a neuropathic component. Most of the drugs explored for neuropathic pruritus are those classically used to treat neuropathic pain as the mechanisms for both share many of the same characteristics.

A review of anti-pruritic agents, both systemic and local, is mainly based on studies of treatment of pruritus in burn injuries.<sup>79</sup> A potential reason for the high volume of research of itching in burn scars is that the persistence of pruritus after a burn is a frequent and distressing complication. The precise trigger for this phenomenon is unknown, but it seems that the neuropathic mechanism is most likely.<sup>84</sup>

## Topical treatments

- Cold receptors are known to inhibit the pruritis pathways, thus cold application may decrease nerve excitability and nerve conduction, so it could be applied over bandages and dressings.<sup>82</sup>

- Levomenthol acts as a coolant on the skin probably using the same mechanism.
- Calamine lotion contains phenol 0.5% which can act as an anaesthetic – however, water is used as a dilutant which, can result in a drying effect which can increase the itch and the colour of the lotion may not be aesthetically acceptable to patients.<sup>86</sup>
- Capsaicin, a naturally occurring alkaloid can be of benefit around the wound area. The method of action is to reduce Substance P, one of the molecules which can irritate the peripheral nerve endings.
- Antihistamines may be of some benefit if the pruritis is cutaneously mediated with a predominant histamine release (see below).
- Topical anaesthetics inhibit pruritis signal transmission via reversible blockage of fast voltage-gated sodium channels in the neurones and so disrupt the nerve conduction and pathways.<sup>87</sup>
- A ketamine, amitriptyline, and lidocaine topical compound has been proposed to reduce peripheral nerve fibre hypersensitivity.<sup>88</sup>

## Systemic treatments

- **Antihistamines:** Depending on the aetiology, histamine may not always be a clinically relevant contributor to wound-associated itching. In the absence of histamine release as the mechanism, the use of antihistamines is primarily limited to their sedative effect.<sup>89</sup>
- **Gabapentinoids, gabapentin and pregabalin:** These are the most investigated and used drugs in the management of neuropathic pruritus. Randomised controlled trials have demonstrated their superiority over antihistamines, both for pregabalin and gabapentin. The use of a gabapentinoid and an antihistamine in combination showed no additional benefit. Gabapentinoids interact with and inhibit excitatory neurotransmitters in the dorsal horn, similar to their action in neuropathic pain. Other anticonvulsants, including carbamazepine and lacosamide, work by modulating voltage-gated sodium channels of the neurons.<sup>79</sup>
- **Antidepressants:** Some antidepressants are thought to have antipruritic effects due to their influence on serotonin levels, which acts as a neurotransmitter in central pathways. Mirtazapine, a noradrenergic antidepressant with antiserotonin and antihistamine activity, may be useful for the palliative relief of pruritus associated with cutaneous infiltration by an underlying malignancy.<sup>88,90</sup>
- **Benzodiazepines:** Although Gamma-aminobutyric acid (GABA) is the major inhibitor of the central nervous system and benzodiazepines enhance its action, their effectiveness in pruritus management is inconsistent. Their role is usually limited to pruritus refractory to other measures. If there is an anxiety component associated with the itch, benzodiazepines may provide relief through their anxiolytic effects on central pathways.<sup>91</sup>
- **Opioid modulators:** Several agents work by modulating opioid signalling pathways, as ligand binding to Mu-opioid receptors (MOR) induces pruritus, while binding to kappa-opioid receptors (KOR) inhibits it. MOR antagonist naltrexone and dual-acting KOR agonist/MOR antagonist buprenorphine and nalbuphine target imbalances in MOR and KOR activation. In 15 reported cases, naltrexone provided better symptom relief than antihistamines. While kappa-opioid agonists have shown success in treating pruritus of other etiologies, they have not been proven effective for post-burn pruritus or chronic wounds.<sup>92</sup> Further research is ongoing regarding the possible therapeutic efficacy of the peripherally acting opioid antagonist methylnaltrexone.<sup>93</sup>
- **Arepitant:** This neurokinin-1 receptor (NK1) antagonist blocks the signalling of substance P, a neuropeptide involved in itch.<sup>94</sup> Case reports cite moderate success in treating pruritus from various causes, and several NK1 antagonists are currently in development.<sup>95</sup>

In Table 4, recommendations for pruritus management are outlined.

Table 4. Recommendations for the management of pruritus

<b>Recommendations for the management of pruritus</b>		
1. Treatment of the underlying cause (including systemic origin)		
2. Elimination of aggravating factors: dry skin, maceration, heat exposure, skin irritants, stress		
3. Pharmacological treatment		
	<b>Dose</b>	<b>Notes</b>
<b>Topical therapies</b>		
Levomethol	1–3% cream or lotion 3 to 4 times daily	Useful in patients who report cooling as an alleviating factor. May cause skin irritation and burning sensation
Capsaicin	0.025 to 0.1% cream 3 to 4 times daily	Particularly useful in neuropathic pruritus
Topical anesthetics	Ketamine 5–10% + amitriptyline 5% + lidocaine 5% 1 to 3 times daily	
	Others: lidocaine, Emla	
<b>Systemic therapies</b>		
Antiseizure medication	Gabapentin 100 to 3600mg per day (2-3 divided doses)	Useful in neuropathic pruritus. May cause drowsiness and weight gain. Caution in renal insufficiency
	Pregabalin 150 to 300mg per day (2-3 divided doses)	
	Others: carbamazepine, lacosamide	
Antidepressants	Mirtazapine 7.5 to 15mg at night	Patients with depression
	Sertraline 75 to 100mg per day	
Opioids	Naltrexone 12.5 to 50mg per day	May cause nausea, vomiting and drowsiness
	Butorphanol 1 to 4mg intranasally per day	
Antihistamines	Hydroxyzine or diphenhydramine 25 to 50mg before bed	Useful through sedative effect, no direct effect on pruritus (except in urticaria)
Substante P antagonist	Aprepitant 80mg per day	Maybe useful in refractory pruritus

## 7. Nutrition

Malnutrition is one of the most frequent problems faced by patients receiving palliative care, and its symptoms significantly worsen their quality of life. Malnutrition affects 5% to 85% of the elderly population and 50% of hospitalised patients.<sup>96</sup> In older populations, 5% to 10% of patients living independently and 65% and 80% of hospitalised and nursing home patients show evidence of malnutrition.<sup>97</sup>

Weight loss in all diseases is associated with a poor outcome. Anorexia and cachexia (muscle wasting secondary to disease-related inflammation) are common in patients with life-limiting diseases such as cancer, AIDS, chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), end-stage renal disease (ESRD), diabetes, peripheral arterial disease, neurological disorders and dementia.<sup>98</sup> Malnourishment in all these patients is a sole risk factor for development of pressure ulcers.<sup>99</sup> Additionally, peripheral neuropathy and poor tissue perfusion, hypo oxygenation, anaemia and uraemia are other reasons for wound development and delayed healing. Thus, in patients with a high degree of frailty and multiple active diseases being malnourished increases the risk of development of pressure ulcers but also with a chronic wound as a symptom of primary illness: diabetic foot ulcer, ischaemic leg ulcer, hypostatic leg ulcer.

Sarcopenia enhances the risk of pressure ulcer formation and delays healing of chronic wounds. It is primarily a disease of the elderly but is also present in patients with long-term chronic diseases and terminal illnesses. Sarcopenia is a syndrome characterised by progressive and generalised loss of skeletal muscle mass and strength and it is strictly correlated with physical disability, poor quality of life and death.<sup>100</sup> Risk factors for sarcopenia include age, gender and level of physical activity. In conditions such as malignancy, rheumatoid arthritis and aging, lean body mass is lost while fat mass may be preserved or even increased. The loss in muscle mass may be associated with increased body fat so that despite normal weight there is marked weakness, this is a condition called sarcopenic obesity.<sup>101</sup> There is an important correlation between inactivity and loss of muscle mass and strength, this suggests that physical

activity should be a protective factor for the prevention but also the management of sarcopenia. Furthermore, one of the first steps to be taken for a person with sarcopenia or clinical frailty is to ensure that the sarcopenic patient is receiving correct and sufficient nutrition. Sarcopenia has a greater effect on survival. It is important to prevent or postpone as much as possible the onset of this condition, to enhance survival and to reduce the demand for long-term care.

Sarcopenia, the progressive loss of muscle mass, increases wound healing complications, and the following table outlines its risk factors, impact, and management strategies.

Malnutrition in the geriatric population is a result of complex physiologic, neurologic and social changes that come with ageing. Changes in smell, taste, appetite, and nutrient absorption are common. Chewing and swallowing problems, impairment of upper extremity function, restricted mobility and immobility, cognitive impairment, depression, loneliness, social isolation, poverty, adverse effects of medications, restricted diets are some of many reasons that lead to malnutrition.<sup>102</sup> This is compounded by the fact that the marketplace presents barriers to healthy eating, leading consumers to make poor food choices, often opting for easily accessible, high-calorie, and low-protein foods with few fruits and vegetables. This may result in an obese patient who has not consumed enough protein and micronutrients for optimal body functioning or wound healing. As a consequence of acute and/or chronic disease, combined with age-related degenerative changes, limitations in physical, mental, and/or social functions occur.

Studies related to pressure ulcers (PUs) have mostly focused on the relationship between PUs and undernutrition. These studies have reported that 60–90% of PU patients are malnourished.<sup>103</sup> Multivariate analysis of epidemiological data indicates that a poor nutritional status and related factors, such as low body weight and poor oral food intake are independent risk factors for the development of pressure ulcers. Development of PU worsens energy and

Table 5. Sarcopenia in palliative wound care

Aspect	Details
Population	<ul style="list-style-type: none"> <li>Elderly individuals and patients with long-term chronic diseases or terminal illnesses.</li> </ul>
Risk Factors	<ul style="list-style-type: none"> <li>Age leads to progressive muscle loss as part of the natural aging process.</li> <li>Gender influences muscle mass changes, with variations observed between males and females.</li> <li>Physical activity level plays a crucial role, as inactivity accelerates muscle loss and increases associated risks.</li> </ul>
Impact on Wounds	<ul style="list-style-type: none"> <li>Increased risk of pressure ulcers due to reduced muscle mass and impaired mobility.</li> <li>Delayed healing of chronic wounds as muscle loss affects tissue regeneration and repair.</li> <li>Correlation with physical disability, poor quality of life, and mortality due to decreased strength and overall health decline.</li> </ul>
Prevention/ Management	<ul style="list-style-type: none"> <li>Physical activity is essential for both preventing and managing sarcopenia-related complications.</li> <li>Proper nutrition ensures adequate intake of essential nutrients to support muscle health and wound healing.</li> </ul>

protein balance by increased inflammatory response to the wound that heightens metabolic demands. The majority of the patients with PUs lose an additional 5–10% of body weight because of catabolic processes that occur due to increased energy status.<sup>104</sup>

## Nutritional screening and assessment

Any person admitted to a geriatric institution, palliative care centre or health care facility should be systematically and routinely screened for malnutrition and risk of malnutrition on admission. Rescreening should be done in regular intervals depending on changes in the patient's condition. For patients with stable conditions rescreening should be done every three months.<sup>105</sup>

Common screening parameters include unintended weight loss, low body mass index, loss of muscle and subcutaneous mass, decreased food intake, localised or generalised fluid accumulation, and decreased functional status.<sup>106</sup> Blood test parameters of serum proteins, like prealbumin and albumin are not markers of nutritional status but of the level of inflammation in the body and indicators of morbidity severity and risk of mortality. Low levels of albumin are predictors of poorer outcome of treatment for specific conditions but are not associated with protein intake.<sup>107</sup> There are many different nutrition screening tools that can be used for identifying nutritional risk. The decision on which to use must be made regarding the specific population being screened and the care setting.

The Mini Nutritional Assessment (MNA) (currently available in different languages), Malnutrition Universal Screening Tool (MUST), Nutrition Risk Screening (NRS) 2002 and the Short Nutritional Assessment Questionnaire are validated for everyday use and can be accessed at <https://www.mna-elderly.com/mna-forms>.

After nutritional screening all patients who are found to be malnourished or at risk of malnutrition should be further assessed. The Nutrition Care Process (NCP) is a systematic method that dietetics and nutrition professionals use to provide nutrition care (reference). The NCP is comprised of four steps: nutrition assessment and reassessment, nutrition diagnosis, nutrition intervention and nutrition monitoring and evaluation.<sup>108</sup> It includes patient history, food and nutrition-related history, physical measurements, nutrition focused physical assessment findings, and findings from laboratory and medical tests. The process is ongoing and dynamic and is tailored to suit the needs of every individual patient.

Oral nutrition not only provides nutrients, but has significant psychological and social functions, enables sensation of taste and flavour and is an important mediator of pleasure and well-being. Oral feeding should always be the first choice of nutritional intervention and all factors that may influence it should be discussed. Successful oral feeding is characterised by enjoyable, or at least tolerable, eating and drinking, the maintenance of weight and hydration, and

an acceptable frequency of coughing and other responses to things getting stuck or 'going down the wrong way'. Problems with oral feeding can lead to prolonged mealtime, coughing, drooling, respiratory obstruction that can lead to dehydration and weight loss.<sup>109</sup> Sometimes these problems can be the first sign of some diseases, but mostly they are complications of conditions or procedures. The availability of carers, the consistency, temperature and appearance of available food, the atmosphere in the ward or home including the number of distractions and interruptions, and a lack of appropriate seating, all have the potential to disrupt oral feeding. Modifications of food and fluids including changes to texture, consistency and quantity, swallowing strategies including manoeuvres and sensory techniques, positioning and postural techniques, external strategies such as carer support, environment and administering food and drink, and behavioural and cognitive techniques can facilitate eating and drinking and improve nutritional status. The ability to communicate effectively is a vital skill in appropriate decision making, especially at times of crisis when stress, fear, intimidation and unfamiliarity with the

setting can overwhelm even sophisticated patients and families. Professionals are responsible for ensuring that effective communication has taken place.

With progression of disease, in conditions where oral intake is compromised or when nutritional needs cannot be met by oral food intake, artificial nutrition and hydration should be discussed. Tube feeding involves feeding via naso-gastric (NG) or naso-jejunal (NJ) tube, percutaneous endoscopic gastrostomy (PEG), radiologically inserted gastrostomy (RIG), percutaneous endoscopic jejunostomy (PEJ), and surgically placed jejunostomy.

### Proteins and energy

Proteins are the most important macronutrients in wound healing. They are responsible for fibroblast activity, collagen formation, angiogenesis and necessary immune response required to transition from the inflammatory to the proliferative phase in wound healing.<sup>110</sup>

Current guidelines recommend a daily intake of 0.8g/kg of proteins for healthy adults.<sup>110</sup> With ageing and in

#### Box 3. Nutritional screening and assessment

##### Nutritional screening and assessment

Key screening indicators:

- Assess weight loss, low BMI, muscle and subcutaneous mass loss, decreased intake, fluid accumulation, and functional decline.
- Use serum proteins as markers of inflammation, not nutritional status.

Validated tools:

- Use tools like MNA, MUST, NRS 2002, or the Short Nutritional Assessment Questionnaire based on population and setting.

Nutrition care process:

- Follow steps: assessment/reassessment, diagnosis, intervention, and monitoring.

Prioritise oral feeding:

- Ensure oral feeding for nutrients, psychological benefits and increased quality of life by addressing factors like food consistency, meal environment and support. Address feeding challenges:
- Recognise prolonged mealtimes, coughing, and respiratory issues as signs of feeding difficulties requiring intervention.

Artificial nutrition:

- Discuss artificial options (such as NG, NJ tubes, PEG) when oral intake is insufficient, ensuring clear communication with patients and families.

Effective communication:

- Ensure empathetic, clear discussions to support patients and families in understanding care plans.

the presence of chronic disease, daily protein needs are elevated and not usually met with normal diet. The 2011–2012 National Health and Nutrition Examination Survey data demonstrated a linear decrease in total protein intake in males and females after age 60.<sup>111</sup> More than 30% of sick men and 25% of sick women aged 65 to 74 did not consume estimated protein needs. More than 40% of sick men and more than 35% of sick women aged 75 and older did not consume estimated protein needs. Older adults are the most likely segment of the population to get sick from a poor diet. Protein intake in older people should be at least 1 g protein per kg body weight per day.<sup>112</sup> The amount should be individually adjusted regarding nutritional status, physical activity level, disease status and tolerance. The International Clinical Practice Guideline recommendations for the role of nutrition for pressure injury prevention and healing specify 1.25g to 1.5g of protein per kg body weight for adults with a pressure ulcer (PU) who are malnourished and are at risk of malnutrition.<sup>113</sup>

In patients with pressure ulceration, a recommended daily dietary allowance of protein of 1.25 to 2.0g/kg body weight, dependent on ulceration size, has been proposed by the National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel.<sup>68</sup> In sick older people, energy requirements may, on the one hand, be lessened due to reduced physical activity, and on the other hand be increased due to disease effects (such as inflammation, fever, drug effects). Energy balance and protein intake are intertwined usually on account of proteins; in higher energy demand circumstances body proteins in storage (muscles) are used for energy. Minimal energy requirements of ill older persons are estimated to be between 27 and 30 kcal/kg<sup>112</sup> and for persons with PU between 30 and 35 kcal/kg body weight according to the International Clinical Practice Guideline.<sup>113</sup> The same guideline recommends individualised assessment for energy and protein requirements based on underlying medical conditions and level of activity. Indirect calorimetry is the most precise approach, but is often only available in selected health care settings. Because of proteins' role as the main macronutrients for wound healing, for preservation of muscle mass and for energy balance they are the most important factor to balance in nutritional intervention plan for older and chronically or acutely ill patients.

## Arginine

Arginine is an essential amino acid that plays a role in protein synthesis, serves as a substrate for cellular proliferation and division, collagen deposition, lymphocyte immune function and hormone release.<sup>114</sup> An essential amino acid, it cannot be synthesised by the body and must be obtained from the diet. Arginine also serves as the biologic precursor for nitric oxide (NO) synthesis. NO has vasodilatory, antibacterial, and angiogenic properties that positively regulate wound repair. Animal studies have suggested L-arginine supplementation may reverse impaired NO synthesis in diabetic wounds. Arginine is also a proline precursor, an essential building block for collagen synthesis and a stimulator of growth hormone and T cells responsiveness, helping to prevent infection. A single randomised controlled trial assessing differing doses of arginine supplementation on stage II or stage IV pressure ulcers noted an almost two-fold improvement in healing time.<sup>115</sup>

Healthy individuals can obtain their required arginine from diet alone; however, individuals under stress (such as during burn recovery, injury, or sepsis) require more arginine, making it a conditionally essential amino acid.<sup>116</sup>

## Glutamine

Glutamine is the most abundant amino acid found in human blood plasma. It is used as a primary metabolic fuel source for rapidly proliferating cells such as lymphocytes, macrophages, fibroblasts, and epithelial cells.<sup>117</sup> Glutamine is a precursor for making the body's 'master antioxidant', glutathione, which protects traumatised tissues from oxidative injury. Glutamine induces expression of heat-shock proteins and protects against inflammatory and infectious wound complications. Additionally, glutamine is thought to increase tissue insulin sensitivity, which may prove beneficial in wounds, as topical insulin previously has been shown in animal and human models to promote healing.<sup>118</sup>

Glutamine is thought to play a role in the inflammatory phase of wound healing via superoxide production, leukocyte apoptosis, and phagocytosis.<sup>119</sup> Since glutamine is released from muscle to central organs (liver, immune system, and wound) under conditions of metabolic stress, glutamine supplementation is suggested to be required for efficient operation of the immune system, the wound, and further proliferating tissues.<sup>120</sup>

While there are numerous randomised controlled trials examining glutamine supplementation they provide conflicting evidence confounded by multi-supplementation within the same trial.<sup>121</sup> Ongoing clinical trials evaluating the effects of glutamine supplementation on differing wound types will hopefully shed light on the efficacy of supplementation.

## Oral nutrition supplements

Oral nutrition supplements (ONS) provide additional nutrients, including protein and energy for people who are not meeting their nutrition needs through food alone.<sup>122</sup> They are not meant to replace normal food but to serve as a snack between meals. ONS are available as ready-to-drink liquids (milk-style or juice-style), powder to add to meals or dessert-style puddings. A patient should be encouraged to take ONS when they most feel like taking them; this may be between meals, like a snack, first thing in the morning or before bed. Alternatively, ONS can be incorporated into everyday foods, such as jellies and sauces. Usually, they are prescribed after nutrition assessment for persons who have, or are at risk of having malnutrition. Clinical benefits of ONS are often seen with 300–900kcal/day (1–3 ONS servings per day) with benefits seen typically with 2–3 months' supplementation.<sup>123</sup>

Clinical benefits of ONS include reductions in complications (such as pressure ulcers, poor wound healing, infections),<sup>124</sup> mortality (in acutely ill older people),<sup>125</sup> hospital admissions and readmissions.<sup>126</sup> The use of ONS may need to be considered earlier in management pathway to avoid unnecessary deterioration and to minimise any loss of muscle and function that may be irreversible later in life. Standard ONS provide ~300kcal, 12g of protein and a full range of vitamins and minerals per serving. There are many ONS enriched with immuno-nutrients (arginine, glutamine, zinc) to improve wound healing and help in wound prevention. Systematic literature review of randomised controlled trials supports their use because of their good tolerance and their efficacy in improving energy balance and clinical outcomes, especially when higher energy-density ONSs (1.5–2.4 kcal/mL) are consumed between meals. The OligoElement Sore Trail (OEST) (N=200) compared a high-calorie, high-protein nutritional formula enriched with arginine, zinc and antioxidants with an active isocaloric, isonitrogenous control formula. This trial confirmed that a disease-specific support improves PU healing, with a 20% higher reduction in PU area after 8 weeks of intervention.<sup>127</sup>

## Home enteral nutrition

Since its introduction in the 1970s, home enteral nutrition (HEN) has been established as a reliable and effective nutritional intervention, which is particularly relevant due to the increasing reliance on ambulatory care.<sup>128</sup> HEN is a medical procedure provided to patients requiring nutritional support, unable to achieve nutritional goals with a standard oral, home-made diet, when the continuation of hospital stay is no longer necessary. It is considered to be a life-saving procedure. Studies have shown that primary diseases of HEN patients in Europe, US and Asia are neurological diseases and cancer; particularly of the head and neck region,<sup>129</sup> however, there are other numerous and often complex diseases that lead to the need for HEN.

To initiate HEN, the principle should be followed that without enteral nutrition there is an expectation of significant deterioration of the patient's nutritional state, affecting prognosis and quality of life (QoL), which is a complex decision, especially if there is no effective treatment for the underlying medical condition. Enteral nutrition support is a medical treatment. However, decisions on route, content, and management of nutritional support are best made by multidisciplinary nutrition support teams. HEN can be delivered through a nasal feeding tube in patients who need HEN only for a short period of time (up to 4–6 weeks) but the preferred access device is percutaneous endoscopic gastrostomy (PEG) or, if indicated, a percutaneous endoscopic jejunostomy (PEJ) when long-term HEN is required. PEG placement has been believed to prolong life by: improving nutrition, minimising dehydration, reducing aspiration and aiding pressure ulcer healing.<sup>128</sup> There is a growing number of patients requiring HEN and an evolving patient profile. The duration of HEN has also increased, which provides new and interesting insights into palliative care.

## End of life

At the end of life, which is defined as the point of rapid physical decline, typically at the last few weeks or months before an inevitable death as a natural result of a disease, approach to patient care changes. The goal of care is focused on comfort, offering a tailored and individualised management of QoL and approaching death of the patient.<sup>130</sup> One prognostic indicator that the life expectancy of a person with advanced cancer has dropped from months to a few weeks or days is the development of a

lack of interest in food and drink.<sup>131</sup> In the dying phase, a patient's desire for food and drink lessens. Good mouth care rather than attempting to feed a patient becomes the more appropriate intervention. In a study randomising patients with severely compromised food intake and limited survival of 1–4 months, supplemental parenteral nutrition or oral feeding did not improve QoL or survival, but increased adverse events.<sup>132</sup> It is important at this stage to consider the appropriateness of continuing PEG or naso-gastric tube (NGT) feeding if this has previously been carried out. The discontinuation of IV fluids must also be considered, as at this late stage it often only serves to exacerbate pulmonary oedema, peripheral oedema and increased secretions, which the semi-conscious patient is unable to manage. Disproportionate treatments must be avoided because life prolongation should never turn in prolonging of the dying phase.

## Recommendations for managing malnutrition and related issues

The following outlines the recommendations for management of malnutrition and related issues in palliative care.

### Screening and assessment:

Screen for malnutrition at admission and rescreen regularly using validated tools (such as MNA, MUST, NRS 2002).

Tailor nutrition care plans to include assessment, diagnosis, intervention and monitoring.

### Nutritional interventions:

- Use ONS for patients unable to meet their needs through diet, with high-protein, high-calorie options enriched with immunonutrients (such as arginine, zinc).
- Ensure adequate protein intake (1–2g/kg/day) to support wound healing and muscle preservation.

### Oral nutrition:

- Prioritise oral feeding, addressing factors like food consistency, meal environment, and carer support.
- Monitor for feeding difficulties (such as prolonged meals, respiratory issues) and intervene promptly.

### Artificial nutrition:

Introduce tube feeding (such as, NGT, PEG) for patients

unable to meet needs orally, guided by risks and benefits.

Use HEN for long-term support with multidisciplinary input.

### Sarcopenia management:

- Encourage physical activity and sufficient protein intake to prevent and manage sarcopenia, including sarcopenic obesity.
- Delay sarcopenia onset to enhance survival and reduce care demands.

### End-of-life care:

- Focus on comfort and quality of life; provide oral care rather than aggressive nutritional interventions like PEG or IV fluids.

## 8. A holistic and person-centred approach

The approach to palliative wound care and symptom management must prioritise the person with the condition, addressing not only the physical aspects of wound care but also the emotional and social dimensions of patient and caregiver experiences. This chapter highlights key strategies and innovations that reflect a holistic and person-centred approach to palliative wound care.

### Psychological impact

In palliative wound care, considerations must extend beyond the physical effects of the wound to address psychological challenges faced by both patients and their caregivers. Social support networks play a crucial role in mitigating the psychological burden associated with chronic wounds. These networks, composed of family, friends and community resources, act as essential lifelines for both practical assistance and emotional resilience.<sup>133</sup>

### Caregiver's burden

Informal caregivers are often the primary support for patients with palliative wounds, bearing significant physical, emotional and financial responsibilities. While family and friends provide invaluable support, the prolonged nature of caregiving can strain these systems. This strain frequently manifests as caregiver burden, characterised by emotional distress, physical fatigue and a diminished quality of life.<sup>134</sup> For caregivers, feelings of isolation, helplessness and burnout are common, particularly when access to formal support systems is limited.

### The role of social support networks in easing psychological burden

Social support networks are essential in reducing the psychological strain on both patients and caregivers. By strengthening these networks, individuals involved in palliative care can gain practical assistance, emotional resilience and a sense of connection.

Short-term care assistance provides caregivers with a much-needed reprieve from their responsibilities, offering them time to rest and recharge. Services such as in-home support, day programmes and short-term stays in

specialised facilities enable caregivers to return to their roles with renewed energy and focus.<sup>135</sup>

Support groups provide another vital opportunity for caregivers, creating safe spaces to share experiences, exchange practical advice and receive emotional support. Peer-to-peer learning within these groups can help caregivers navigate the complexities of wound care and reduce feelings of isolation.<sup>135</sup>

Open communication within caregiving networks fosters collaboration, strengthens relationships and ensures that caregivers feel validated and supported. Regular discussions about caregiving challenges, resource needs, and patient requirements can distribute responsibilities more evenly and reduce the overall burden.<sup>136</sup>

### The psychological impact on patients

For patients with palliative wounds, persistent symptoms such as pain, odour and exudate can evoke significant psychological distress, including anxiety, depression and a loss of dignity. Connecting patients to robust social support systems, such as community resources and advocacy groups, can provide emotional reassurance and practical assistance. This approach reduces isolation and empowers patients to actively participate in their care.<sup>133</sup>

### Patient education in a palliative wound care setting

Patient education is central to effective palliative wound care. Unlike curative approaches, the goal in palliative care is to manage symptoms, enhance comfort and preserve dignity. Tailored, culturally sensitive educational strategies enable patients and caregivers to address distressing symptoms while aligning care interventions with individual values and goals.

### Empowering patients and caregivers

Therapeutic patient education is a structured and dynamic process that equips patients and caregivers with the knowledge and skills to manage the physical, emotional and social challenges of chronic conditions.<sup>137</sup> By providing

accessible and culturally appropriate resources, education helps individuals better understand wound care principles, such as selecting suitable dressings, recognising signs of infection and managing exudate.<sup>138</sup>

Cultural beliefs influence perceptions of wound care, especially in palliative settings. For instance, rituals and taboos around illness and healing may shape how patients approach treatments. Healthcare providers must incorporate cultural competence into educational efforts, ensuring care plans are respectful of individual preferences and traditions.

### Patient education on symptom management

Education is key to managing distressing symptoms effectively. Promoting a sense of control and partnership in care eases the psychological impact of symptoms. Table 6 summarises patient education strategies for symptom control.

### Ethical and holistic care

Ethical dilemmas in palliative wound care often revolve around balancing symptom management with respect for patient autonomy. Adhering to the principles of beneficence, non-maleficence and patient-centred care ensures that educational efforts align with patient values and goals. Open communication is essential to facilitate informed decision-making, enabling patients and families to understand the rationale behind interventions.<sup>2</sup>

Table 6. Patient education strategies for symptom control

Symptom	Patient education strategies	References
Pain	Educate patients on using pain scales for accurate communication and provide information on analgesic regimens and non-pharmacological options, like relaxation techniques.	134
Odour	Implement strategies such as antimicrobial dressings, regular wound cleansing, and odour-neutralising sprays to improve hygiene and reduce social/emotional impacts of malodour.	139
Exudate	Teach patients to select appropriate absorbent dressings and ensure frequent dressing changes to minimise leakage and maceration, reducing stress.	140
Bleeding	Instruct on applying direct pressure to control bleeding and recognising when to seek professional intervention, empowering patients and caregivers to manage emergencies.	140
Pruritus	Educate patients on identifying triggers, using moisturisers or antihistamines, and maintaining hydration to manage itching effectively.	141

### Integration with end-of-life planning

Integrating wound management into end-of-life care planning ensures that wound care aligns with the broader goals of palliative care. Discussions about wound care should include input from patients, families and interdisciplinary teams, ensuring that interventions prioritise comfort and dignity while addressing the physical and emotional dimensions of care.<sup>2,142</sup>

### Conclusion

This holistic, person-centred approach to palliative wound care reflects the multifaceted nature of managing chronic wounds, addressing not only the physical symptoms but also the emotional and social dimensions of care. By encouraging collaboration, cultural competence, and therapeutic education, clinicians can significantly enhance the quality of life for patients and their families.

### International survey results

As part of the background to this document, an international online survey was distributed to the international partners and co-operating organisations of EWMA in December 2023. These organisations distributed the survey to their networks and EWMA had no access to these mailing lists. Those in receipt of the survey invitation could opt to click on the survey link or ignore the survey as they deemed appropriate. The survey aimed to determine from clinicians what their concerns and priorities for PWC were.<sup>143</sup>

In total 513 people completed the survey, 333 of them were nurses and 102 were doctors, see Figure 2. Respondents had a high level of education in wound management and encountered patients with chronic wounds and non-healable wounds on a daily or weekly basis.

Interestingly, the most frequent wound aetiology requiring a palliative approach was pressure ulcers (n=306) followed by malignant fungating wounds (n=270). In describing the appearance of these wounds, the majority were described as ulcerated (n=407) followed by fungating (n=211).

A series of free text questions were asked and over 450

responses were provided for each. Pain, odour and exudate management were ranked in the top three concerns for patients, clinicians and for research priority setting. Other factors, such as infection control and patient-centred approaches, ranked highly.

Regardless of the type of question posed, pain, odour and exudate management were in the top three as either of concern to patients and staff, as a challenge to manage and as a priority for research. This underscores how poorly researched these issues are and how poorly served our patients are for their management.

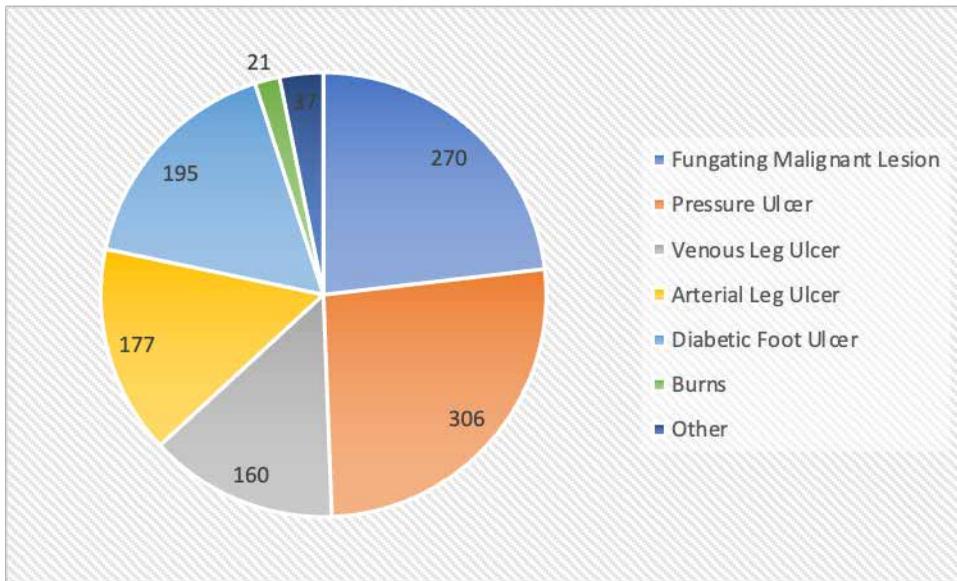


Figure 2. Aetiology of wounds requiring a palliative wound care approach

## 9. Summary and recommendations for advancement of palliative wound care

Palliative wound care is primarily characterised by symptom management with a strong focus on enhancing and improving the patient's quality of life. Our survey and a review of the literature shows that the major symptoms of pain, odour, exudate, itch and bleeding remain a significant management challenge and are not well supported by a strong evidence base to guide their management. There is a critical need for researchers and industry to work together to tackle this unmet need. The following recommendations are targeted at clinicians, educators, policy makers and industry:

- There must be a continuous focus on the needs of patients requiring a palliative approach to wound care and this focus should include input from patients and family members on how they can be addressed.
- There is a critical need to develop and test interventions for the management of major wound-related symptoms including pain, odour, exudate, itch and bleeding.
- Education on the principles of palliative wound care should be included in all wound care curricula, whether at undergraduate or postgraduate levels.
- Further education for all clinicians on how to enhance the nutritional status of the patient should be considered.
- Ensure care plans prioritise patient and family preferences, emphasising symptom relief and quality of life, and actively involve patients and caregivers in decision-making and goal-setting.
- Encourage interdisciplinary collaboration among healthcare providers, including dietitians, psychologists, social workers and palliative care specialists, to address the complex needs of patients.
- Advocate for robust clinical research to develop and validate new products and techniques for managing palliative wound symptoms and collaborate with industry to promote innovation in wound care solutions.
- Address the psychological and social dimensions of wound care by providing emotional support for patients and caregivers, aiming to reduce caregiver burden and enhance coping mechanisms.
- Develop national and institutional policies to ensure equitable access to palliative wound care resources and training.
- Collaborative efforts should be encouraged among healthcare providers, educators, and policymakers to develop standardised guidelines and best practices for palliative wound care.
- Research funding should be allocated to explore novel and cost-effective treatment options for symptom management in palliative wound care.
- Industry should be engaged in the development of innovative wound care products that address the unique challenges of palliative wounds, such as managing pain.
- Regular audits and evaluations should be conducted to assess the effectiveness of palliative wound care interventions and to identify areas for improvement.
- Telehealth services should be leveraged to provide remote support and monitoring for palliative wound care patients, ensuring timely interventions.
- Advocate for the equitable distribution of advanced wound care materials, such as specialised dressings and odour-neutralising agents, to improve patient outcomes.

# 10.

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