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Why talking about dying matters

As usual, there is an abundance of learning, information and differing points of view in our latest issue of the journal, so lots of reading for everyone — hopefully while sitting outside in the warmer weather! Our 'Community matters' piece explores the need for open and honest discussions in relation to death and dying. This subject is extremely relevant as the week of 6th May was 'Dying Matters Awareness Week', whose focus this year was 'the way we talk about dying matters'. Conversations around dying can be difficult, but they are necessary and they do need to be timely to allow preparation and support to be given to everyone involved. When a person dies, it is often a very distressing time for those they leave behind, but if the person's wishes have been communicated effectively it can be supportive. Please read this article — it aims to enhance and support your knowledge and understanding.

I was interested to ready the editorial about NHS Charities Together and how they recognise the very real challenges our workforce faces, and are working to support healthcare professionals and communities in various ways. This support is particularly crucial given the ongoing pressures within the NHS. Catherine Best, visiting nursing lecturer, Birmingham City University, also champions the nursing profession in her feature, emphasising that strong leadership is essential for improving the quality of care, fostering professional developing, and ensuring a supportive work environment for nurses.

It is always good to update knowledge of particular clinical areas. I found the article on diverticular disease especially informative around why individuals should try and ensure a high fibre diet, rather than a restrictive one, to prevent disease progression — a valuable insight for both patient care and dietary advice. It is also beneficial to learn about regional initiatives, as seen in the feature on insulin delegation in care homes in Oldham, which shows what can be achieved by blended roles programmes and developing competencies of health and social care workers. Such initiatives demonstrate the positive impact of multidisciplinary training and collaboration, leading to better patient outcomes and more efficient care delivery. Another highlight for me in this issue is the article on urinary catheter blockage and leakage. This reminded and alerted me to the fact that some people might be living unnecessarily with an indwelling catheter and could benefit from trial without catheter (TWOC), and how this can enhance patient comfort and reduce the risks associated with long-term catheter use.

I hope that you find this issue interesting — please do get in touch if there are any areas you would particularly like to see covered.

Annette Bades, editor-in-chief, *JCN*

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Editorial board

I am a district nurse, nurse teacher in practice, associate lecturer and Queen's Nurse who believes that excellent community nursing is vital and that community nurses should be more visible. Care should be available to everyone who wishes to remain at home. I have an interest in dementia, end-of-life care and teaching in practice to support newly qualified nurses. I am very pleased to be a part of the JCN editorial board, an accessible journal for all community nurses to inform their practice and strive for excellent care.
Gail Goddard

I am a district nurse and an academic with a passion for end-of-life care, older people and nurse education. I believe that care at home gives people the best opportunity to remain in control of their own health and wellbeing. It is a privilege to be a guest in a person's house and to help them achieve their goals. It is also a privilege to train nurses of the future to adopt this personalised care approach to really make a difference. I am excited to join the editorial board of the JCN where I can see the hard work that community nurses undertake.
Amanda Young

I am a dietitian with experience in primary and secondary care. While interested in the dietary management of disease in general, my overarching passion is the promotion of evidence-based nutrition among healthcare professionals. This is especially important given the lack of accurate dietary information on the internet and in the media, which patients are often exposed to. I'm grateful to be part of the JCN editorial board to promote and keep nutrition on the agenda.
Patrick Ward-Ongley

I've been working in district and community nursing for 20 years. My particular passion is for continuity of care in community nursing, which encourages healthy behaviour, builds trusting relationships, can reduce healing times, and makes people feel more positive about their healthcare experience. We have a responsibility to prepare for the future by continuing to develop leadership and clinical skills. The JCN is a great resource for support, education and to share best practice.
Hattie Taylor

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1. Velickovic VM, Prieto PA, Krga M, Jorge AM. Superabsorbent wound dressings versus foam dressings for the management of moderate-to-highly exuding venous leg ulcers in French settings: An early stage model-based economic evaluation. Journal of Tissue Viability. 2022;31(3):523–30. **2.** Velickovic VM, Lembelembe J P, Cegri F, Binic I, Abdelaziz AB, Sun S, *et al.* Superabsorbent wound dressing for management of patients with moderate-to-highly exuding chronic leg ulcers: An early stage model-based benefit-harm assessment.The International Journal of Lower Extremity Wounds. 2021.

In each issue of the *Journal of Community Nursing*, we investigate a topic affecting our readers. Here, we explore...

Talking about death and DNRs

It's a commonly quoted maxim that there are only two certainties in life — death and taxes. But while most of us have little control over the money the government rudely deducts from our wages, it is human nature to consider what might happen when our time on earth is finally up. Some of us might have already made a list of the favourite relatives we'd invite to our funeral or thought about the uplifting music we might play. Others might have considered a traditional burial or want their ashes scattered in a cherished beauty spot.

What we are less likely to have thought about are the medical procedures that we might have to undergo, or the difficult decisions that we and our relatives might have to make when the time comes, including whether we would want to be resuscitated if we became gravely ill.

The kinds of decisions and dilemmas that people face at the end of life were brought into sharp focus recently by a new report from the Parliamentary and Health Service Ombudsman (PHSO), which highlighted serious issues with a common intervention used by medics at end of life — the 'do not attempt cardiopulmonary resuscitation' (DNACPR) order.

While ostensibly designed to protect those patients who do not want or would not benefit from being resuscitated, the PHSO found that DNACPR conversations often take place too late and during an emergency, resulting in stress for patients and their relatives. On some occasions, the report found that patients were excluded from DNACPR conversations altogether ('British attitudes need to change on talking about death to support end of life discussions' — www.ombudsman.org.uk).

So, what exactly are DNACPR orders and more importantly for community practitioners, what is the nurse's role?

WHAT ARE DNACPR ORDERS?

DNACPR orders are designed to provide clear guidance that CPR should not be attempted when a patient's heart or breathing ceases, such as in a cardiac arrest. They are an important element in end-of-life or palliative care and can be a helpful way to protect people from being given CPR inappropriately.

Any DNACPR must be signed off by the most senior clinician responsible for a person's care; while usually a doctor, this can be a senior nurse. Some people may agree to a DNACPR order simply because they do not want to be resuscitated in an emergency; others may decide after discussion with a senior clinician that CPR would not necessarily prolong their life or would do 'more harm than good' ('CPR Recommendations, DNACPR and respect' — www.resus.org.uk).

As a palliative care clinical nurse specialist, I regularly talk about death and dying with patients. Sometimes this is trickier than others, but it is essential to the holistic care of that person. Introducing the DNACPR conversation is never easy, and sometimes it is essential that the timing is right and at a point when the patient can process the conversation. Some patients will need multiple conversations over time to understand and digest the concepts discussed. However, this is often dependent on the point at which the patient is within their illness trajectory.

Using the ReSPECT (recommended summary plan for emergency care and treatment) document significantly aids these discussions regarding DNACPR and also allows patients' own priorities and wishes around their care to be acknowledged and recorded. Including relatives within these discussions is hugely important, not only so that patients feel supported with their decisions, but also to reduce distress for relatives later on. Ensuring patients and their relatives have a full understanding of the DNACPR and had the opportunity to ask any questions, will give better preparedness around the process of dying. This is particularly relevant when the preferred place of death is at home.

Louise Hankin
Clinical nurse specialist, St Wilfred's Hospice, Bosham, Chichester

My father's mother died almost 50 years ago, she died in her sleep, the GP (who knew her well) was able to visit in the morning and sign the death certificate and this was normal practice. I started my nurse training in 1984 and DNACPR forms did not exist at that time, patients had for TLC (tender loving care) written on the top of their notes to indicate that they were coming to the natural end of their lives.

Moving forward in my career and once qualified, DNACPR forms appeared and are now part of the healthcare system. Along the way we have lost the notion that dying is a normal part of living and, if asked, many people will say that they would like to die in their sleep. The fact that out of hours GP services are outsourced and GPs at night do not know patients has contributed to more people receiving interventional care when it is not always appropriate.

As an end-of-life care facilitator working in care homes, this was evident when having resident and carer meetings to discuss end-of-life care. Family members believed that a DNACPR form meant that their loved one would not be cared for or 'written off' by healthcare professionals. They did not understand that if their relative died in their sleep without a DNACPR form it would mean that a resuscitation attempt would have to be made, and the likelihood of a successful outcome would be very slim. The default position has changed, and everyone is now resuscitated if the right paperwork is not in place. I am not suggesting that people should not be resuscitated, but conversations need to be had as part of routine conversations — this has always been part of my family's conversation. When my adult children received their driving licenses they were asked if they wanted to be a donor, this was used as a perfect time to have an open and frank discussion of future wishes.

I do realise that not everyone feels as comfortable about talking about death, however much of the discussion is based on practicalities, and the people we care for are very practical. Asking them if they have thought about what the future holds and do they have any plans or wishes for the future rarely results in the healthcare professional being dismissed. We do, however, need to be mindful and respectful of cultural and religious differences, many countries do not have DNACPR forms at all, some resuscitate everyone regardless, even when they know that death is imminent. With 25% of nurses on the NMC register being internationally recruited, and the diversity of the health and social care workforce, we need to ensure that they are prepared to care for those who are coming to the end of life. Providing education on end-of-life care and increasing communication skill training can help to support health and social care professionals' ability to have more conversations before someone is actively dying.

Amanda Young
Director of nursing programmes, Queen's Nursing Institute (QNI)

Crucially, DNACPR orders should only be used to prevent patients from receiving inappropriate CPR, and all other treatments can still be used ('Do not resuscitate ([DNR] forms and CPR decisions' — compassionindying.org.uk).

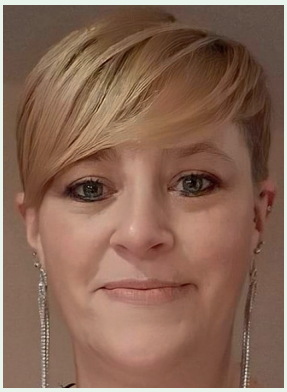
WHY THE CURRENT CONTROVERSY?

Unfortunately, during the Covid-19 pandemic, many end-of-life decisions were made in stressful and emotional circumstances, with many patients and their relatives feeling pressured to make life-altering choices. For example, the PHSO received numerous complaints about inappropriate DNACPR orders being put in place during the pandemic, particularly for disabled and older people ('British attitudes need to change on talking about death to support end of life discussions' — www.ombudsman.org.uk)

The *Guardian* also highlighted instances during the pandemic where blanket DNACPR orders were placed on all patients in a care home without adequate consent, potentially resulting in avoidable deaths. In some units, there were also reports of blanket DNACPR orders being applied to any resident who had contracted Covid-19 ('"Do not resuscitate" orders caused potentially avoidable deaths, regulator finds' — www.theguardian.com).

WHAT ARE THE ISSUES WITH DNACPR IN THE COMMUNITY?

While individual patients in a care home or receiving palliative care at their own home may have a DNACPR order in place, it is vital that community nurses are aware that DNACPR decisions should never be made for a group, such as the residents of a care home or a cohort of patients over a certain age or who share a medical condition ('DNACPR' — www.mkuh.nhs.uk).



To get it right, we need to talk about death. Having been involved in the analysis of complaints, and identifying learning outcomes from patients and their families, I have often spotted a plethora of missed opportunities for a conversation to have taken place that may have significantly changed their experience of resuscitation, end-of-life care, and death.

For most people who need end-of-life care, there comes a point where the care they need is being met by a range of different services. However, despite that, important conversation opportunities are still being missed.

When it comes to death and dying, there should be more focus on training healthcare professionals to pick up on cues which facilitate end-of-life care planning, including resuscitation discussions. ReSPECT (recommended summary plan for emergency care and treatment) forms in use in my area have been constructed in such a manner as to prompt a discussion with the patient and to enable them to express what matters to them when it comes to their care and death. These types of end-of-life discussions tend to gravitate towards the topic of resuscitation with a natural flow that should not be rushed or forced, and should be patient-led.

Some patients are frightened that putting it in black and white will bring a finality to life, which can be daunting for both patient and healthcare professional, and it can be surmised that this is a factor in healthcare professionals' reluctance to having such discussions, together with a fear of causing offence, upsetting the patient, or saying or doing the wrong thing. It is, however, worth noting, from my personal experience with my father, that talking about it can bring a sense of peace, since everyone involved knows what they are working towards when it comes to a patient's end-of-life care.

It is understood that death is a sensitive subject, and one that a lot of people shy away from — but who are we kidding? It's going to happen to us all, and wouldn't we rather take the opportunity to have a conversation about care choices, including resuscitation, rather than have that decision made for us, as so often happens.

Who should be having these discussions? My answer would be anyone with the knowledge and confidence. Some people will happily talk to their community nurse, but put them in front of a doctor and silence prevails. Shouldn't it be someone who knows them best? I was once handed a form that had been completed by a patient and their family, is that wrong? Are we setting ourselves up to fail by expecting a senior professional to have the time and ability to complete advance care planning (ACP) discussions when others are more than capable? As long as these discussions are happening, that has to be a good thing.

Why does it frighten professionals? Isn't our role to support and advocate for our patients? Doesn't that include those who will heal and move on as well as those we know will not? Why would we not want to be such a significant part of a patient's health journey?

A further question is who is being protected by not having these conversations? We communicate with each other and our patients every day, it comes naturally to us; so why is it difficult when it comes to talking about death and dying? Working in palliative care is an eye-opener to the resilience of some of our patients. By the time DNACPR discussions happen, most patients have been aware of their diagnosis for some time; they have thought about it, been angry about it, grieved for it and, to a degree, may have come to terms with it. At this point they just need someone to listen and acknowledge the choice they are making, and be comforted in that choice, as it is theirs and is arguably one of the most significant choices anyone can make. These discussions could take place over a period of time. Conversely, some patients are very clear of their wishes at the first meeting. It is not always cut and dried, but that doesn't change what needs to happen.

As said, ACP conversations need time to be completed and patients should be given the time to understand and reflect on their choices. This means picking up on cues, looking at disease trajectories, anticipating deterioration, and recognising when the opportunities arise to begin ACP discussions.

Sadly, time is something most community nurses and healthcare professionals are massively lacking. Despite promises of increased funding and budgets that accommodate the care in the community approach, things aren't likely to change quickly.

So, how do we make it better? It feels important to reiterate the importance of recognising opportunities for end-of-life conversations and DNACPRs. I have lost count of the times I have met a patient, been handed a DNACPR form and been asked what it is. What does it mean? Who filled it in and why wasn't it discussed with them?

Palliative care is a vast area and should not be only about the last days of an individual's life. A life-limiting diagnosis should open up a multitude of support networks, which should all encourage and offer support in ensuring good quality of life, including the all-important discussion regarding end-of-life care, treatment preferences, resuscitation status, and place of care and death, in a timely way. Of course, this is patient dependent and, when patients are unable to make those decisions, the final choices should be made where possible with the inclusion of family and caregivers, or made with the best interests of the individual at heart.

It would be nice to think that death is not the taboo subject it was some years ago. It is a privilege to support people in their preferred place of care and death, on their terms, and to be part of their end-of-life journey.

It is also important to highlight that encouraging and facilitating these types of emotive conversations can be difficult for staff who may struggle with emotional detachment when end of life is being discussed, particularly in palliative care, and support should be offered to staff alongside regular one-to-ones, personal development meetings and clinical supervision to reduce compassion fatigue.

Death is not and should not be seen as all doom and gloom. Talking about it should not be either. It is a fact of life, and shying away from it would mean failing our patients.

Amanda Nichols
Clinical nurse specialist palliative care; Queen's Nurse

Advanced care planning, including conversations to discuss patient's wishes for their future care, is a vital part of the role of community nurses. We are in a unique position to identify those who may be reaching the end of their life, as well as seeing patients gradually deteriorating with life-limiting conditions and frailty. We assess each individual continuously and where appropriate ask ourselves the surprise question (would I be surprised if this person died within the next 12 months?). Often, we are the healthcare professionals who see these individuals the most, so we build trusting therapeutic relationships with them and often their families too. I feel that it is an important part of my role to have these discussions gently, over time, and at a pace dictated by the patient themselves. While a senior healthcare professional should have the conversation about 'if your heart should stop how would you like us to care for you?' and then document a DNR decision and advanced care plan, the rest of the community team ideally will also be able to take part in these conversations and discussions with patients to help them decide on what their own plan may be. These are difficult conversations to have and require courage, confidence and sensitivity, but they are vitally important, and each nurse usually develops their own way of doing it over time with practice, observation of others, and reflection. In this situation, one size definitely does not fit all, as every conversation will be different. Our role as community nurses is to support each other with these conversations, challenge with kindness, and respect where necessary, but assist the patient to achieve their wishes wherever possible.

Gail Goddard
Floating district nurse manager and senior lecturer; Queen's Nurse

Another major issue that community nurses need to be aware of is that the DNACPR must follow the patient between different settings. For example, one report found significant inconsistencies in community trusts in the 'portability of DNACPR decisions' when patients were being moved from one setting to another ('Variation in local trust Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) policies: a review of 48 English healthcare trusts' — bmjopen.bmj.com).

This issue was reflected in another report which found that DNACPR orders were often not mentioned at staff handovers, such as between the patient's care home and the hospital. It is vital that community nurses ensure that a DNACPR is shared with the whole multidisciplinary team, including carers — this is particularly important during out-of-hours ('Care home practitioners guidance to cardiopulmonary resuscitation' — www.lancashiresafeguarding.org.uk).

WHAT IS THE COMMUNITY NURSE'S ROLE?

Sometimes, community nurses may unwittingly find themselves dealing with the fallout from a poorly communicated DNACPR order after a patient's death. While a senior clinician must sign any DNACPR order, it is community nurses who can end up bearing the brunt of relatives' distress when they find out that their deceased loved-one did not receive CPR in their final moments.

While it is best practice to include relatives in DNACPR discussions, there is no legal imperative to seek their consent and in reality many are not included. This can lead to significant upset after a relative has died, with the relatives feeling that 'more could have been done' and leaving community nurses to explain the process and 'pick up the pieces' ('Managing do not attempt cardiopulmonary resuscitation conversations in the community' — www.britishjournalofcommunitynursing.com).

Community nurses play a vital role in end-of-life care and are often in the best position to initiate conversations about death and do-not-resuscitate (DNR) orders with patients. These discussions, while sensitive, are crucial for ensuring that patients' wishes are respected and their final days are filled with comfort and dignity. Fortunately, community nurses have access to excellent training resources.

I strongly advocate for community nurses to build relationships with their local hospices. Many hospices, like ours, are eager to support them in developing these crucial skills. We can offer workshops, mentorship programmes, and ongoing resources to bolster confidence and expertise. In addition, at our hospice (and available at many in the UK) we take great pride in providing advanced communication skills training. This is a training programme often in high demand. It equips nurses with the tools to navigate difficult conversations with empathy and clarity. Furthermore, we offer training on advanced care planning, empowering patients to make informed decisions about their future care, along with web-based resources to help these complex conversations.

However, a challenge arises as the majority of hospices in the UK operate as charities, relying on donations and fundraising to supplement low levels of government funding. This can create financial constraints that limit their capacity to expand providing this aspect of care to patients along with supporting and educating other providers.

Additionally, increased public awareness about the importance of discussing death and DNRs would be immensely helpful. More general press coverage and media campaigns could normalise these conversations and encourage open communication between patients, families and healthcare professionals. Dying Matters Week in the UK every year really helps with this.

It's important to remember that we are all part of a team working together for the patient's best interests. Community services, the NHS, hospices, and other providers all play crucial roles. By fostering collaboration and open communication within this team, we can ensure a smoother, more dignified end-of-life experience for all.

Let's empower community nurses, who are so close to their patients, to have these important conversations and develop the skills to do it well. Through training, collaboration, and increased public awareness, we can ensure that death and DNRs are discussed openly, respectfully, and ultimately with the patient at the forefront of every decision.

Victoria Bartlett
Director of patient care, Rowcroft Hospice; Queen's Nurse

Talking about death in any format can be such an emotive topic to discuss. However, when also needing to discuss the so called 'do not attempt cardiopulmonary resuscitation', known as the DNACPR order, can create very powerful emotions in all those involved. Death is a painful issue for most people to think about and consider when they are part of the decision-making process, whether they are the individual themselves, their family and friends, or the caring team around them.

Listening to the individual themselves, if this is possible, and their family and friends, will help to make this decision less stressful. It is a discussion that must be had but it needs to be an open and trusting dialogue between all parties involved, with no assumptions on anyone's part and with clear explanations of all the stages involved and what such a decision entails. It may need to take place over several stages at timed intervals to allow people to understand fully what is being considered. Some individuals and families may, of course, have already had these discussions and are fully aware of what they wish to happen which is useful, but a thorough discussion and full understanding will still need to be confirmed.

Community practitioners and nurses often have the privilege of knowing and caring for the individual and their family for a long period of time, which enables a deeper layer of understanding to be part of the discussion process. However, the very nature of community nurses may involve lone working, hence support is invaluable for all involved during this process.

High quality, empathic, person-centred support needs to be offered to individuals and their families — this is often primarily in the first instance by the clinicians involved in the discussion, but other avenues of support can also be offered. This may be faith led or secular, but options for time to be given and support to be offered are vital at such a potentially traumatic time.

Clinicians involved in the decision-making process will have colleagues to utilise for support, with all professionals involved having their respective codes of conduct to rely upon, for example, nurses have the Nursing and Midwifery Council 'Code of Conduct', which they can utilise for guidance. Trust and unit policies and procedures will also be present for additional support as to the how to, but the emotional cost for practitioners should also be considered, so robust forms of support such as supervision, time out and team and leadership support are vital when such decisions are being discussed with often vulnerable individuals and their distressed families.

Teresa Burdett
Principal academic, Bournemouth University

It is also important that community nurses feel confident to challenge or at least enquire about a patient's DNACPR decision if they feel it is inappropriate. Another factor that arose during the Covid-19 pandemic was nurses lacking the confidence to challenge doctors on blanket DNACPR orders in care homes ('Protect, respect, connect —– decisions about living and dying well during COVID-19' — www.cqc.org.uk).

Of course, providing best practice for patients at the end of life is not all about DNACPR orders. Discussions around resuscitation present community nurses with an opportunity to consider patients' and relatives' wishes, and any end-of-life care plan. As well as discussing whether the patient would want to be resuscitated, considerations might include ('Role of the community nurse in supporting person-centred end of life care' — journals.rcni.com):

- Supporting people to die in their preferred location, either in the home or in a healthcare setting
- The degree of interventions the person would like to undergo. As well as CPR, this may also involve pain-killing medicines or invasive procedures
- Listening to and making arrangements for religious and spiritual beliefs
- Lasting power of attorney (a way for the patient to give someone they trust legal authority to make decisions on their behalf when they are no longer capable)
- The patient's preferred emergency contacts.

HAVING A DIFFICULT CONVERSATION

It is important to remember that many patients, particularly those who may be isolated or at the end of life, will see CPR as a 'lifeline', when the reality is that it can be violent and not always successful. According to a report highlighted in the *British Medical Journal*, actual CPR survival rates range from around

12% for community cardiac arrests to 24–40% for in-hospital arrests ('Patients overestimate the success of CPR' — www.bmj.com). And this is without considering the potential after-effects such as broken ribs, brain damage and a loss of independence.

Having a conversation with a patient about whether or not they should be resuscitated can be uncomfortable. One way of finding out the patient's views on the subject is to discuss with them how they imagine their final moments — for example, do they see themselves at home and surrounded by family? This can represent a more comfortable way of beginning the conversation.

Also, you might ask the patient or relatives whether they have considered what CPR actually entails. It is unlikely that many will have imagined their last final moments to include a potentially violent intervention, and while it is important not to influence their decision, they do need to understand the facts ('Managing do not attempt cardiopulmonary resuscitation conversations in the community' — www.britishjournalofcommunity nursing.com).

Some basic pointers for nurses when discussing DNACPR with a patient include ('Emergency care and resuscitation plans' — www.bmj.com):

- Do not open the conversation by discussing resuscitation or CPR, but begin a general conversation about what might lie ahead in their care journey and what treatment they think might help
- Avoid overemphasising the brutality of CPR — while it is important that they understand the facts, it is not your role to attempt to 'put them off' being resuscitated
- Avoid discussing CPR survival rates — these depend heavily on a patient's personal circumstances and discussing statistics does not represent person-centred care
- Do not assume that they will want to be resuscitated or not resuscitated — some people will value comfort over prolonging their life, and vice versa.

Of course, nobody likes to talk about death or end of life. However, by making sure that you understand the issues around DNACPR orders and how they are implemented, you will be in a better position to advocate for patients and help them ensure that they have the death that they and their loved ones wish for.

While death and dying is an emotive subject, it is important that it doesn't remain taboo. People may not want to consider their own mortality, and when forced to through advancing years or illness can find it very difficult to then have a discussion with family members about their end-of-life care wishes. Similarly, family members may not want to broach the subject with their relatives for fear of causing upset.

Community nurses often provide care over a period of time to people who are approaching the end of their life. This gives them the opportunity to build relationships with both the patient and their families and places them in a privileged position to discuss end-of-life wishes with both the individual and their family members. Where patients may not want to broach the subject with their relatives, the community nurse is well placed to be the conduit for such discussions and ensure that all are aware of the wishes of their family member.

It could be argued that it's never too early to ensure people are aware of your wishes should there be a time when you are unable to communicate them yourself. Community nurses, therefore, also have an important role in raising awareness of Power of Attorney and that it is available for both health and financial matters.

Community nurses may find having these types of conversations challenging and need support themselves. Employers should consider both training and support needs of staff, and staff must have a safe space and time available to debrief and reflect.

Debbie Myers
Head of clinical and professional development, Quality and Professional Development Team, Leeds Community Healthcare NHS Trust

RECOMMENDED READING

Compassion in Dying. *Do not resuscitate (DNR) forms and CPR decisions*. Available online: https://compassionindying.org.uk/how-we-can-help/do-not-resuscitate-dnr-forms-and-cpr-decisions/#what-is-a-dnr-do-not-resuscitate-form

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Interpreting NICE guidance: a call for research

Dr Daphne Hazell, part-time NHS GP and wound care researcher and service manager, Homewoundcare Ltd

In recent years, numerous GP practices and community healthcare providers have made substantial investments in automated ankle brachial pressure index (ABPI) machines with 1,000+ now in use (manufacturers' sales data). However, following the release of the National Institute for Health and Care Excellence (NICE) guidance on automated ABPI on 24 May, 2023, practitioners have faced individual decisions regarding the continued use of these devices.

The NICE guidance conveys a critical message: 'Not enough evidence to recommend routine adoption of automated ankle brachial pressure index (ABPI) measurement devices to detect peripheral arterial disease in people with leg ulcers.'

The response from wound care service providers has been far from uniform, with many concerns about the impact on workload, leading to a wide range of interpretations and actions taken across the UK. A minority of providers have opted to discontinue the use of automated ABPI altogether. To shed light on this diverse response, a survey of users of an automated wireless ankle-brachial index measuring device, presented as a poster at the Wounds UK conference, revealed that 56% of respondents had chosen not to alter their use of these devices in light of the NICE guidance (Hazell, 2023).

Given this scenario, the question arises: How are healthcare services continuing to use these devices while adhering to NICE guidance? According to the guidance, centres currently employing automated ABPI measurement devices to detect peripheral arterial disease in individuals with leg ulcers may continue to do so under certain conditions:

1. They should be collecting data or conducting research to assess the devices' efficacy in identifying individuals with peripheral arterial disease.
2. Clinicians using these devices should possess expertise in assessing peripheral arterial disease.
3. Users of the devices should be fully aware of their limitations, especially concerning diagnostic accuracy and the potential to miss peripheral arterial disease, as well as device-specific variations.
4. There should be provisions for further assessment using alternative methods, including manual Doppler.

In discussions between the author and practices that have opted to continue using these devices, they have generally adopted the following measures:

- Automated ABPI measurements are carried out by clinicians, typically nurses, with specialised experience in identifying arterial ulcers and peripheral arterial disease
- These clinicians continue to perform manual Doppler assessments for patients exhibiting clinical suspicion of peripheral arterial disease or whose results fall near the 0.8 threshold. They do not solely rely on automated device results for these patients
- Comprehensive records of ABPI measurements, specifying whether they were obtained manually, with automated devices, or both, are maintained in patient records. This data serves for retrospective audits and research studies.

Furthermore, the NICE guidance (2023) underscores the need for further research in this domain, encouraging studies to:

- Evaluate the devices' ability to detect peripheral arterial disease in individuals with leg ulcers, especially considering that most previous studies focused on individuals without leg ulcers
- Investigate how the use of automated ABPI affects the time taken for venous leg ulcer treatments
- Assess clinical outcomes for treatments initiated following ABPI assessment.

If you are a healthcare provider continuing to use automated ABPI devices in your practice and are willing to contribute anonymous data for ongoing research, please get in touch via email at: info@homewoundcare.co.uk. Your valuable insights can play a crucial role in advancing understanding of the impact of these devices on patient care. JCN

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Helen Rodgers, brand manager, L&R

New Compression Selector app

Search, size and send with the new Compression Selector app from L&R

Do you make decisions on which compression system to use? Are you involved in selecting and measuring for compression?

Selecting the correct type and size of compression can be time-consuming and confusing. The L&R Compression Selector app aims to support clinicians by simplifying the process. It can quickly and effectively suggest options from the L&R compression range that would be suitable for patient's needs. Whether that is ReadyWrap® adjustable wrap system, Activa®, ActiLymph®, Adore compression hosiery, or the L&R leg ulcer hosiery kit, the app can support you.

The app has been developed through user feedback and aims to simplify compression selection, sizing and the ordering process.

So, how does the app support you?

SUPPORTS COMPRESSION SELECTION

Type of compression

Following patient assessment, the app takes you through a step-by-step process to guide you through compression selection. The process will ask you questions about the patient's condition to ensure that the most appropriate options of compression are presented for you to select.

Size of compression

The app will also help you select the correct size based on your patient's measurements — by ensuring the correct fit, the compression works as effectively as possible.

SUPPORTS CLINICAL CHOICE

The Compression Selector app suggests garment options from the L&R compression range. From the suggestions offered, you can choose the compression therapy tailored to individual patients, which will optimise outcomes.

SUPPORTS PATIENT CARE

By helping you select the appropriate compression garment for your patient's condition, the Compression Selector app helps deliver patient care by ensuring effective solutions are used in the management of their condition.

WHAT ELSE CAN THE APP OFFER?

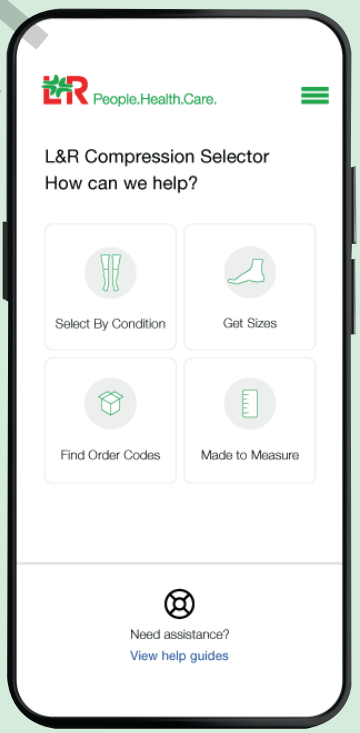
The Compression Selector app has some great features built in to offer further support.

For example, there are videos that guide you through the measuring and sizing of compression hosiery and ReadyWrap. Support with sizing will help you to select the best fit of compression to reduce waste, ensure patient comfort and achieve the best outcomes for your patients.

There are also videos to support the application of compression hosiery and ReadyWrap. Correct application not only ensures that the correct level of compression is delivered, but also builds a positive relationship between the compression garment and wearer.

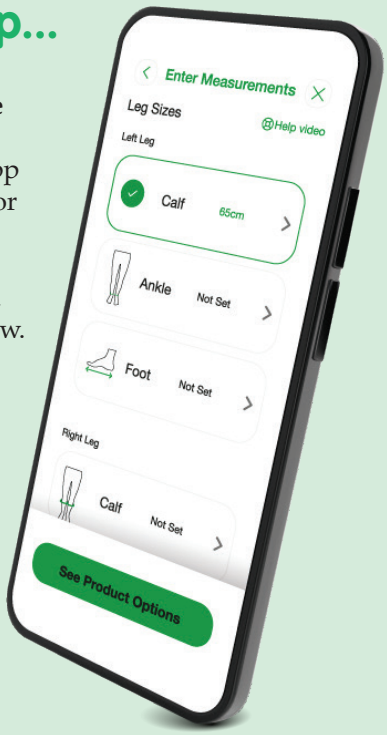
Ordering codes are also easily accessible within the Compression Selector app. You can either use the app as a quick reference and access the codes directly from the 'How can we help' screen, or find these at the end of the selection process.

With so many features, the L&R Compression Selector app will support your everday practice, every day. Ready to download?



Get the app...

The Compression Selector app is free to download from Google or Apple app stores, just search for 'L&R Compression Selector', also accessible as a desk top version via www.lohmann-rauscher.co.uk, or scan the QR code below.



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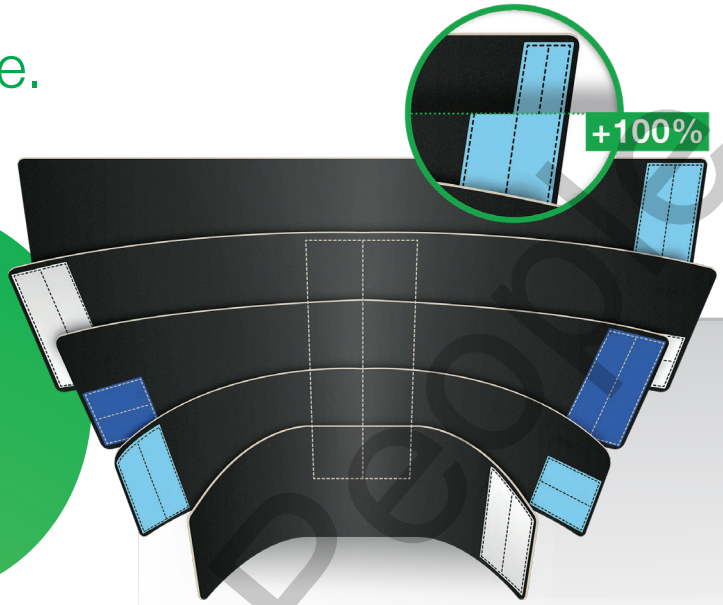

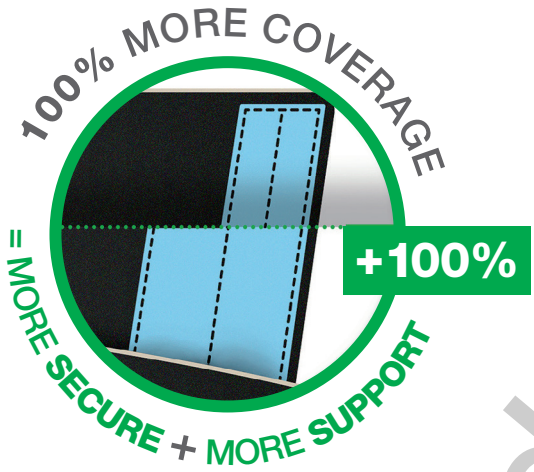

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Ellie Orton OBE, chief executive, NHS Charities Together

How charities support the NHS to survive and thrive

At NHS Charities Together, we want everyone in the UK to experience the best healthcare possible.

Right now, the NHS is facing immense challenges. Pressures continue to grow, NHS resources are stretched, the aftermath of the Covid-19 pandemic is still starkly felt and budgets are squeezed so only the crucial elements of care are delivered. Patients' needs are changing — the population is growing and more people are living longer, often with more or multiple long-term conditions. We depend more on technology. Staff must be properly supported to provide a positive, personal experience to patients.

A new YouGov survey of 1,078 NHS staff commissioned by NHS Charities Together reveals the scale of NHS staff who feel that they are under growing pressure. A staggering 96% of staff who responded to the survey said they feel pressure is currently growing on NHS services and 95% feel the pressures on the NHS will continue for years even after the Covid-19 pandemic. Nearly three in four (74%) say the pressures feel as high as when Covid-19 cases were at their peak, and over four in five (83%) believe it will take many years for staff and volunteers to recover from the pandemic.

Charities exist across most parts of the public sector to add value to stretched public services and the NHS is no different.

Working strategically with their trusts, our network of over 230 charities provide extra support and give an extra £1 million a day to the NHS. This help goes well beyond the 'trimmings' — from mental health support for an exhausted workforce to projects preventing ill health in the community, funding for research and innovations that enable health services to advance, or training and equipment for community first responder volunteers who are the first to arrive in an emergency. We continue as a sector to work together to have most impact, focusing on supporting workforce wellbeing, improving patient experience and outcomes, and helping people to live well in communities.

NHS Charities Together's Covid-19 Urgent Appeal launched on 23 March 2020, coinciding with the first lockdown being announced in the UK. Despite many of us feeling scared and anxious, it was heartening to see the nation get behind the NHS, with the appeal going on to raise £162 million. Although the immediate threat of the pandemic has receded, NHS staff are still facing immense pressure. Four years on, NHS Charities Together has funded thousands of projects across the UK, supporting urgent needs, community prevention projects and the longer-term recovery of the NHS, and supported over 600,000 patients and nearly one million healthcare staff across the UK. We have provided extra practical and emotional support for the workforce, funding for volunteers, improving health through green spaces, and tackling out-of-hospital cardiac arrest.

Initial evaluation of the first phase of the appeal shows:

- Nearly one million NHS staff have benefitted from vital extra support, including counselling and rest areas
- Approximately 600,000 patients have also been helped to access care or had support to reduce isolation
- Nearly £7 million has been invested in training and equipment for thousands of life-saving community first responder volunteers
- 4,241 individual projects funded through the first phase urgent and emergency grants programme
- Over 90% of projects from the first phase of the appeal have long-lasting impact.

The charity has also funded over 325 community organisations to tackle health inequalities and prevent ill health in the community, helping to reduce pressure on NHS services.

The pressure on the NHS is relentless, and support from the public has never been more vital. NHS Charities Together will continue to help NHS charities go further, to increase their support for NHS staff, volunteers, patients, carers and families, so that everyone has access to the best health and care possible, no matter what.

Ensuring people receive the care and support they deserve in a time of immense challenge needs different sectors to work together. For the NHS to truly thrive, Government, local authorities and the voluntary sector must work together with the amazing network of NHS charities to drive change and ensure that our healthcare system is the best it can possibly be.

To find out...

... more about NHS Charities Together, visit: https://nhscharitiestogether.co.uk/about-us/who-we-are/

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ARION SLIDE SOLUTIONS

Rectal pathology clinic cutting NHS waiting times

Dr Ammara Hughes, general practitioner, Bloomsbury Surgery and clinical director, Central Camden PCN

In primary care settings, patients often present with a myriad of bowel symptoms, ranging from mild discomfort to potentially life-threatening conditions. It can be challenging to discern between serious life-threatening conditions like cancer and benign issues such as haemorrhoids.

70-WEEK WAIT FOR SOME BOWEL PATIENTS

The current guideline from the National Institute for Health and Care Excellence (NICE) suggests providing faecal immunochemical tests (FIT) to individuals presenting with low-risk symptoms suggestive of colorectal cancer in primary care settings (Wise, 2023). Meanwhile, those with high-risk symptoms should be promptly referred to the suspected cancer pathway. Nevertheless, patients frequently experience prolonged waiting periods for colonoscopy due to capacity constraints.

The number of people waiting more than a year-and-a-half for NHS treatment in England is rapidly growing and has hit a record high (Pickover, 2023). New performance data on referral to treatment (RTT) shows patients waiting to start treatment at the end of November 2023 was 7.6 million (NHS England, 2024).

Indeed, in the author's practice, patients with low risk colorectal issues were waiting up to 70 weeks for treatment in secondary care. This is because even if we think that the patient is suffering with haemorrhoids, we still need a colorectal surgeon to check the bowel to rule out something more serious, such as cancer, before the haemorrhoids are treated. While not life-threatening, they can still be life-limiting. They may affect someone's ability to sit for extended periods of time and can cause significant pain and worry.

TREATING MINOR BOWEL ISSUES IN THE PRIMARY CARE SETTING

Central Camden PCN has taken a proactive step by introducing a dedicated community rectal pathology clinic at Bloomsbury Surgery in North London, with upskilled allied healthcare professionals running the service.

The clinic represents an innovative approach to improving access to colorectal healthcare services, particularly for patients with lower risk gastrointestinal symptoms. The PCN staff take on expanded roles in assessment, diagnosis, and management of bowel-related concerns under the supervision of general practitioners (GPs) or colorectal surgeons.

A new technology has helped the clinic's success. The team use a handheld device (a digital rectoscope called LumenEye X1), which gives a high-definition look inside the colon. Giving a direct visualisation of the anorectal tract in the general practice setting can quickly identify what the problem might be — either eliminating the need for formal endoscopy or identifying cases that require a colonoscopy due to polyps or other serious pathology being found. The device not only aids the team in spotting rectal cancer, but also in diagnosing other bowel concerns, such as inflammatory bowel disease and haemorrhoids. The team has found that it reduces costs of unnecessary investigations into benign disease, all while supporting NHS goals to create diagnostic hubs in the community, improve patient experience and health outcomes, while taking pressure off over-stretched endoscopy departments in hospitals.

The clinic has seen a discharge rate of around 80%; this means patients (usually those with painful rectal issues) are having procedures done in the clinic in the same month.

In the author's clinical opinion, this PCN initiative is revolutionising patient care in primary healthcare by providing prompt and efficient services, while easing the burden on London's overstretched NHS colorectal departments. JCN

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Nursing leaders step forward...

Catherine Best, visiting nursing lecturer, Birmingham City University; Queen's Nurse

'... it is important that nurses through collaborative action develop a leadership model that not only fits with nursing, but is taught throughout the nursing curriculum and used within nursing practice.'

International Nurse's Day, 12th May, is the day when the life of Florence Nightingale, considered by some to be the founder of modern-day nursing, is recognised and celebrated. It is also the day when the world unites in their support and respect of nurses, while acknowledging and celebrating the unique contribution that nurses make, not only in supporting the health of all nations, but in helping to maintain and improve global economic growth. After all, when populations are healthy, they are better able to contribute to society, undertake active work, and care for their families.

It is trusted therefore that the theme of this year's International Nurse's Day, 'Our Nurses. Our Future. The economic power of care', will encourage global leaders to recognise how strategic investment in nursing can bring considerable economic and societal benefits on a global scale. This should prompt the shift in perspective needed to ensure that the nursing profession is recognised for the contribution it makes. However, none of this can be fully achieved without a dedicated team of nursing leaders, determined to advance the future of nursing and lead the profession through the third decade of the millennium and beyond.

As I have progressed throughout my career, I have embraced the importance of having strong nursing leaders at the helm. Equally through my writing, I have sought to profile the unique contribution that nurse leaders make in promoting the value of nurses and the positive impact they have on a global platform.

In 2019, the Queen's Nursing Institute published my blog entitled 'International Women's Day: not just one day but every day', which promoted the fundamental characteristics of an effective nurse leader. In 2021, a further blog entitled: 'Forging Ahead: International Women's Day 2021', published by Evidence-Based Nursing, argued that current nurse leaders could play an active part in supporting the ambitions of future nurse leaders by becoming inspiring and accountable role models in all establishments where the skills of nurses are needed; including care homes, community teams and charitable organisations.

While there exists a plethora of leadership models through which nurses can develop their leadership skills, including Servant Leadership (Greenleaf, 1970), Situational Leadership Theory (Hersey and Blanchard, 1969), Transformational Leadership (Downton, 1973) and Authentic Leadership (George, 2003), many of which have served nursing leaders well, there is no specific model that focuses on nursing leadership. To strengthen our leadership position, it is important that nurses through collaborative action develop a leadership model that not only fits with nursing, but is taught throughout the nursing curriculum and used within nursing practice; at the forefront of which should be praxis, a process which 'requires action along with a reflective awareness of what we experience when we care for others' (Chinn et al, 2021).

Praxis encourages nurses to think differently. Rather than passively accept the rhetoric, it encourages us to challenge how things are and consider how they could be. It encourages me to think what can I do to make a difference and collaboratively what can we do? **JCN**

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Product snapshot

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Intermittent catheterisation is considered the gold standard for urine drainage (Holroyd, 2018). It can be used as treatment for voiding problems due to disturbances or injuries to the nervous system, non-neurogenic bladder dysfunction, or intravesical obstruction with incomplete bladder emptying (Royal College of Nursing [RCN], 2018). Irrespective of the underlying cause, patients with voiding problems frequently find themselves having to make use of a catheter to drain their bladder when it fills and thereby undertake regular intermittent self-catheterisation (ISC). Intermittent catheterisation involves the introduction of a catheter into the bladder and its immediate removal when drainage stops, a process which needs to be repeated four to six times a day (Holroyd, 2018). The experience of performing ISC, while straightforward for some, can be both difficult and painful for others (Guinet-Lacoste et al, 2016; Rognoni and Tarricone, 2017).

Catheters have developed and improved over time. They have changed from latex to silicone or polyvinyl chloride (PVC) and then, in the 1980s, the introduction of hydrophilic polymer coating (Place, 2023). One of the challenges of using hydrophilic polymer coated catheters is that it only remains fully wet for a relatively short period of time, and it can take only five to 20 minutes for the coating's hydration level to fall below 75% (Humphreys et al, 2020). This can give rise to a number of complications:

- Pain or discomfort during insertion
- Pain or discomfort during withdrawal
- Urethral trauma
- Urinary tract infection (UTI)
- Bleeding (haematuria)
- Urethral stricture (Carson and Wylie, 2022).

GENTLECATHAIR™ FEELCLEAN TECHNOLOGY™

GentleCathAir™ uses FeelClean Technology™ to improve user experience.

Protects the urethra due to no sticking

Traditional hydrophilic catheters have a polyvinylpyrrolidone (PVP) coating that, with the addition of a solution, allows for smooth insertion without the use of a lubricating gel. Most coated hydrophilic intermittent catheters are made using a similar manufacturing process. Catheters need to be slippery when wet, however, when coated hydrophilic catheters begin to dry, they become sticky, which may cause discomfort and urethral damage.

Unlike traditional catheters that have an external hydrophilic coating, FeelClean Technology embeds the hydrophilic additive into the GentleCath catheter material. This means all surfaces of the catheter are hydrophilic, from the tip to the end. In testing, GentleCath with FeelClean Technology took less force to start removing than the leading coated catheter (Carson and Wylie, 2022).

Designed to reduce discomfort, bleeding and the risk of urinary tract infections

When water is applied to the outside of GentleCathAir, it is attracted to the surface of the catheter where the hydrophilic additive is embedded, instantly creating a slippery surface. Within a wet environment, it will continue to retain its hydrophilic properties. This avoids the sticking and tugging associated with some coated hydrophilic catheters (Pollard et al, 2022; *In vitro* data on file).

Minimal mess and residue

FeelClean Technology does not stick and leaves minimal residue and mess behind (Convatec, data on file: WHRI4930 TA565), both in and around the urethra, on hands and clothes, which is unpleasant for the user.

Other GentleCathAir intermittent catheter for female features include:

- Discreet design to look like a cosmetic and fit into women's day-to-day lives
- Leak-proof seal so that the lid can be replaced, and it can be thrown away later
- Minimal loose pieces as the cap secularly clicks onto the base of the AirCase™ for fewer pieces to worry about
- Pure water instant activation which is ready to use on opening the case
- A handle with a long funnel for easy and hygienic handling without touching the catheter
- Sustainability — excluding the catheter, all parts are recyclable.

Using an intermittent catheter can be a life changing treatment option. They are designed to give individuals more control over their bladder and freedom to do things outside of the home.

Traditional coated hydrophilic catheters have been associated with pain and discomfort and seen as a 'normal' part of catheterising, when in fact, they are probably not using the right catheter for them (Convatec, data on file, 2018; Laws, 2023). Indeed, hydrophilic coated catheters only remain fully wet for a relatively short period of time (5–20 minutes). This can be a problem if ISC takes longer than that, for example, for those with less dexterity or spinal cord injury (Place, 2023). As the coating dries out it becomes sticky making it difficult to insert or withdraw. This can result in pain and discomfort and a risk of friction and trauma to the urethra Discomfort is not normal and should not be the standard. Catheter users should feel more comfortable, have less anxiety, have reduced infections and feel confident and motivated to live their best life without worrying about their catheter.

FeelClean Technology is proven to provide additional benefits to catheter users and with no sticking and minimal residue, GentleCath intermittent catheters can provide a cleaner and more comfortable experience for users.

CLINICAL EVIDENCE

In a recent publication, clinicians working in primary and secondary care, described issues faced by their patients, giving feedback from their experience of using GentleCath with FeelClean Technology (Laws, 2023). Bai (2023) reports that it is much simpler to use, giving patients more confidence when they perform ISC. She also comments it is a more comfortable experience for patients. Coghlan (2023) tells us that patients find it a user-friendly and aesthetically pleasing design. It is smooth and mess free, giving a cleaner experience. She feels that this may make patients feel more at ease. Ngwenya (2023) states it gives a significantly improved patient catheterisation experience. Perkins (2023) reported that patients had commented on the ease of storage. Patients also described less mess, giving a better grip, resulting in fewer incidents of accidently dropping the catheter. Roberts (2023) states that a big challenge during catheterisation is pain or discomfort, especially in high-tone non-relaxing sphincters, e.g. young women. Patients report less pain and discomfort with GentleCath, and that it was notably wet when they removed it. Sharkey (2023) describes how ISC has a significant impact on a patient's daily routine. She states that unlike other catheters that are sticky or have gel, the feeling of these catheters was soft and clean. Thomas (2023) says that the most commonly reported problem with ISC is pain on insertion. She reported that in her experience there was no pain or soreness, probably due to the coating and non-sticky feel of GentleCath. She also states patients particularly liked the easy to use packaging, making un-boxing and preparation simpler and user-friendly. Willis (2023) explains how the product has had a significant positive impact on her service, particularly in terms of time-saving. It has become their go-to catheter for troubleshooting patient issues, especially bleeding during the procedure.

Catheter users also share their personal experience of using these catheters. Two patients describe how using GentleCath catheters has positively improved their quality of life.

In summary, evidence shows that using Convatec GentleCath catheters with FeelClean Technology has the potential to decrease complications (Carson and Wylie, 2022), which could result in faster, cleaner and more comfortable catheter experience and be more cost effective for the NHS.

RESOURCES, ADVICE AND SUPPORT FOR PATIENTS

For people using intermittent catheters and their clinicians, Amcare™ and the me+™ programme are available to offer resources, advice, support and product delivery.

Amcare™

Amcare™ has provided a nationwide home health support service to people living with stoma and continence conditions for over 30 years.

The Amcare urology nurse team provide a care quality commission (CQC) registered service for assessment, treatment and diagnostics, and are there to help and support both clinicians and patients with continence or urology issues in clinics. The team aims

to help take pressure off services as they can respond to any patients experiencing issues with their urology and continence products and help clinicians reduce their backlog of patients waiting to be seen.

Amcare home delivery works in partnership with the NHS to offer users a full range of stoma, continence and bowel care products, delivered directly to their door. Whatever product is used, Amcare home delivery can manage the whole process for them.

It has an award-winning delivery partner, which has a reliable fleet of almost 3,700 vehicles with far reaching coverage from Scotland to Cornwall, also delivering to the Channel Islands and the Outer Hebrides.

In summary, Amcare can:

- Provide peace of mind for users of urology products by making the ordering and delivery of products simple, reliable and discreet
- Use a wealth of experience to be able to compassionately support and advise clinicians on all aspects of caring for patients with urology conditions
- Customise the service provided to every customer to suit their needs.

THE ME+™ PROGRAMME

The me+™ Programme was developed to alleviate the fears and worries associated with all aspects of intermittent self-catheterisation, including products, support and services.

It was created in collaboration with clinicians and intermittent catheter users to provide a range of resources, tools and information alongside professional advice and personalised support from the Amcare urology nurse team.

The me+ Programme for continence care features web-based resources, including user guides. These provide instructions and tips on using GentleCath products to ensure each individual user has access to the information they require to start catheterisation. The me+ Answers section also offers users help finding the most relevant answers and information easily and quickly.

LOCATING RESOURCES

For Amcare support and advice call 0800 88 50 50 or send an email to info@amcaregroup.co.uk, or for more information visit: www.amcarebyconvatec.com/for-customers/continence-care/

To join me+: www.convatec.com/en-gb/continence-care/me-services/

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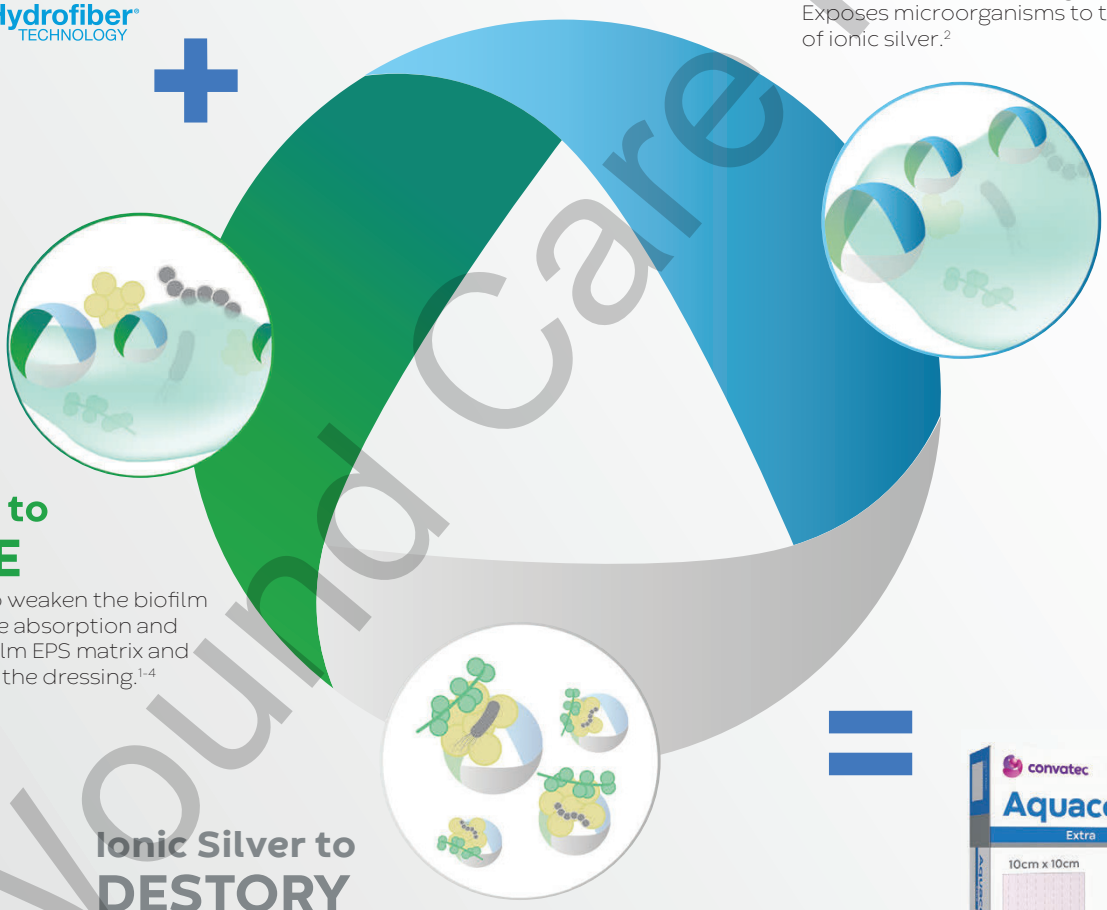

Surfactant to **REMOVE**

Surfactants work to weaken the biofilm matrix[9], allowing the absorption and removal of the biofilm EPS matrix and microorganisms by the dressing.[1-4]

Ionic Silver to **DESTORY**

Silver is a safe, broad-spectrum antimicrobial.[6,7] Once the other active ingredients have weakened the biofilm's EPS matrix, ionic silver can destroy the microorganisms hiding within.

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Cost impact and outcomes of 50 lymphoedema cases using adjustable compression garments

Melanie Thomas, Ioan Humphreys, Cheryl Pike, Karen Morgan, Rhian Noble-Jones

Increasing pressures on healthcare resources require constant evaluation of the efficiency and effectiveness of provision, particularly for the rising number of vulnerable, elderly and obese patients. Practices regarding compression are arguably often ingrained due to its historical usage, with evidence from managing chronic venous insufficiency (CVI) underpinning its effectiveness. This evaluation explores the clinical benefit, impact, outcomes and cost-efficiencies of using an adjustable compression wrap system instead of previous care. 'Before-after design' observation of 50 patients captured baseline resource use, costs and outcomes (clinical and patient) at the time of assessment and again at a maximum of six-month follow-up. Data after using the adjustable compression wrap showed significantly improved clinician-reported outcomes: presence of wounds/leg ulceration (from 56% to 21%), incidence of cellulitis (halved), and reduced complexity/severity of lymphoedema. Additionally, patient-reported outcomes, visual analogue scale (VAS) health score and LYMPROM© scores for pain, heaviness, shopping for shoes and clothes, and body image significantly improved. The mean number of community nurse visits per patient reduced from 11.6. to 9.1, but was not statistically significant (p-value 0.09). However, this evaluation found that over six months there was a mean cost reduction of over £383.70 per patient, which included the purchase price of the adjustable compression wrap system.

KEYWORDS:
■ Economic impact ■ Lymphoedema ■ Patient-reported outcome measures ■ Adjustable compression wrap ■ Wounds/leg ulceration

Lymphoedema is a long-term condition affecting hundreds of thousands of people in the UK. An epidemiological study found the crude prevalence of lymphoedema was nearly four per 1,000 of the population, rising to nearly 29 per 1,000 in those aged 85 or above (Moffatt et al, 2017).

Since the pandemic, the complexity and incidence of oedema cases have increased, causing a rise in venous ulceration, falls, and cellulitis infections within NHS Wales (Humphreys et al, 2023; Lymphoedema Wales Clinical Network, 2023). Obesity, immobility, multimorbidity and lengthened waiting times also seem to have exacerbated complexity factors. Untreated lymphoedema is costly to the National Health Service (NHS), causing pressures on unscheduled care, community nurse contacts, wound care visits, and dressing and compression product utilisation (Thomas et al, 2017; Humphreys et al, 2023). Lymphoedema complications, such as wounds, have a huge economic impact on health system budgets, accounting for over £5 billion per annum (Graves et al, 2021). Reports of increasing falls and repeated cellulitis episodes (Posnett and Franks, 2008; Burian et al, 2021) also add to ongoing financial pressures in the NHS.

Lymphoedema Wales Clinical Network previously identified that 55% of community nurse capacity was spent managing lower limb wounds, leg ulceration and lymphoedema (Thomas et al, 2017). Lack of knowledge in the use of compression therapy, leading to reduced competence and confidence, contributed to delayed healing rates and patients remaining on caseloads unnecessarily. Additionally, use of unsuitable dressings, bandages and sub-optimal compression garments add little value, while contributing to exponential mounting costs (Guest et al, 2015; Humphreys et al, 2017).

From a patient's perspective, the impact of lymphoedema on life causes poorer reported outcome measures and quality of life. Anxiety, depression, increasing isolation, intimacy and desirability, limitations in choices of clothing/shoes and even hobbies, holidays and finances have been documented (Thomas et al, 2020; Gabe-Walters and Thomas, 2021; Chima et al, 2022; Aszkul et al, 2023). Although patient-reported outcome measures (PROMs) are

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captured in lymphoedema services, they are not evaluated specifically in relation to changes in compression treatment.

Compression is one of the most important components in lymphoedema management, reducing limb size, improving shape and expediting wound healing (Mosti and Cavezzzi, 2019). Compression methods include pneumatic devices, multilayer bandaging, traditional style graduated compression garments (or stockings), and adjustable wrap garments or devices.

International healthcare literature variously refers to wrap devices as adjustable wrap garments (AWG), adjustable Velcro wraps (AVW), (Velcro-) adjustable compression wraps (VACW/ACW), or by their product name, e.g. ReadyWrap® (L&R). In essence, the adjustable compression device is a garment for a limb, most commonly the lower leg. It is made of low or non-stretch fabric (Benigni et al, 2023) and significantly, has adjustable straps or some means for the patient to adjust the fit and compression pressure.

Medium to low quality studies have described their use as a substitute for venous leg ulcer compression bandaging and the intensive phase of lymphoedema treatment (Borman et al, 2021; Al Saffar, 2022), as night-time support garments (Campione et al, 2021), and as a realistic alternative to stockings for many elderly clients in residential care (Balet et al, 2021). Wraps have been shown to produce more consistent and reliable pressure than compression bandages when self-adjusted by patients and give greater independence from the therapist (Partsch, 2019). While single case studies show wraps to be useful in a variety of specific cases, evidence reviews have recommended further clinical research (Williams, 2016).

Arguably, practices regarding compression are often ingrained due to its historical usage, with evidence from managing chronic venous insufficiency (CVI) underpinning its effectiveness. Thus, due to the high occurrence of lymphoedema and wounds, plus variable compression management systems available, in the authors' clinical opinion, a service evaluation including cost-efficiencies was justified. Indeed, increasing pressures on healthcare resources mean that service leads need to be constantly evaluating the efficiency and effectiveness of their provision, particularly for the increasing number of vulnerable, elderly and obese patients on their caseloads.

AIM AND OBJECTIVES

Using routinely collected assessment and follow-up data, the aim of this evaluation was to explore the clinical benefit, impact, outcomes and cost-efficiencies of using a ReadyWrap® adjustable compression garment instead of previous care.

The specific objectives were to:

- Measure changes in clinical and PROMs before and after compression wrap system intervention
- Assess the healthcare resource use and related costs
- Estimate health service changes by using the compression wrap system
- Estimate changes in health-related quality of life measures (HRQoL).

METHODS

The evaluation was an observational 'before-after design', capturing baseline resource use, costs and outcomes (clinical and patient) at the time of assessment for the compression wrap system and again at a maximum of six-month follow-up. 50 patients using the compression wrap system in Lymphoedema Wales Clinical Network from October 2021 to March 2023 were evaluated. Data comprised existing routinely collected information and all patients consented for their anonymous data to be used for the evaluation.

ETHICS AND RESEARCH GOVERNANCE

Swansea Bay University Health Board Research and Development (R&D) office deemed the study a service evaluation/data audit. Swansea University School of Health and Social Care (SHSC) ethics committee provided permission to analyse the anonymised data sets.

PATIENT SELECTION

The following inclusion criteria were used:

- All patients were aged 18 or over, and treated by lymphoedema staff within Lymphoedema Wales Clinical Network
- Patients with primary or secondary lymphoedema from a cancer or non-cancer origin were included
- No time limits were set on the onset of lymphoedema and swelling could be unilateral or bilateral
- Patients may or may not have had superficial or chronic wounds
- Midline lymphoedema patients were not included. Nor were patients who were unable to use and care for the compression wrap system.

INTERVENTION

The intervention for this service evaluation was the introduction of a compression wrap system. All 50 patients were fitted with the wrap system for the foot, calf and/or thigh region as per lymphoedema specialist recommendations. The patients were advised to wear the wrap for a minimum of eight hours and a maximum of 24 hours daily, dependent on their presenting history. Patients were provided with two sets of products for cleanliness.

DATA COLLECTION MEASURES

Data capture included soft and hard clinical and patient outcomes, including body mass index (BMI), International Society Lymphology (ISL) staging, British Lymphology Society (BLS) staging, Lymphoedema Wales Outcome Severity, health-related quality of life tool (EQ5D5L)/visual analogue scale (VAS), Lymphoedema-specific Patient Reported Outcome Measure (LYMPROM©, see below), circumferential measurements using

Table 1: Demographic data

Variable	Advice	N	(%)
Age	18–40	5	(10)
	41–50	2	(4)
	51–60	6	(12)
	61–70	14	(28)
	71–80	10	(20)
	81+	13	(26)
BMI	Normal weight (18.5–24.9kg/m^2)	3	(6)
	Overweight (25–29.9kg/m^2)	5	(10)
	Obese class 1 (30–34.9kg/m^2)	5	(10)
	Obese class 2 (35–39.9kg/m^2)	4	(8)
	Obese class 3	23	(46)
	Missing	10	(20)
ISL staging	Stage 0 (latent)	0	(0)
	Stage I (mild)	0	(0)
	Stage II a (pitting)	19	(38)
	Stage II b (non-pitting)	21	(42)
	Stage 3	10	(20)
Affected Limb	Lower limb (left)	4	(8)
	Lower limb (right)	3	(6)
	Lower limb (bilateral)	43	(86)
Rockwood Frailty Score	1 (very fit)	4	(8)
	2 (well)	1	(2)
	3 (managing well)	8	(16)
	4 (vulnerable)	10	(20)
	5 (mildly frail)	7	(14)
	6 (moderately frail)	14	(28)
	7 (severely frail)	5	(10)
	8 (very severely frail)	1	(2)
Reason for assessment	Lymphoedema	22	(44)
	Lymphoedema and wound care	28	(56)
BLS staging	Stage 0 (latent)	0	(0)
	Stage I (early	1	(2)
	Stage 2 (established)	2	(4)
	Stage 3a (complex unilateral)	6	(12)
	Stage 3b (complex bilateral)	41	(82)
Lymphoedema Wales Severity Outcomes	1 — at risk	0	(0)
	2 — mild oedema	0	(0)
	3 — moderate oedema	2	(4)
	4 — severe oedema	7	(14)
	5 — complex oedema	13	(26)
	5W — complex with a wound	28	(56)

tape measure, Rockwood Frailty Score, wound description, and number of cellulitis episodes and falls. Previous resource utilisation of health care, e.g. dressings, garments and staff time were captured before the compression wrap system was applied and again at six months.

PATIENT-REPORTED OUTCOME MEASURES (PROMs)

Patients completed a range of PROMs pre- and post-compression wrap system application. LYMPROM© (Lymphoedema-specific Patient Reported Outcome Measure), a

Table 2: Oedema location at onset

Oedema site	N	(%)
Distal	2	(4)
Distal, foot	15	(30)
Distal, foot, toes	9	(18)
Proximal	1	(2)
Proximal, distal	1	(2)
Proximal, distal, foot	13	(26)
Proximal, distal, foot, toes	9	(18)
Total	50	(100)

tool developed by Lymphoedema Network Wales clinicians and stakeholders (Gabe-Walters and Thomas, 2021), was used to record the impact of lymphoedema on patients. There are 13 questions in LYMPROM©, including home life, personal care, heaviness, pain, anxiety, work, finances, body image, walking, intimacy/desirability, hobbies, buying clothes/shoes and holidays, which can be divided into three dimensions of emotional, physical and social health. Items captured included impact of lymphoedema on heaviness, pain, anxiety, work, intimacy/desirability, hobbies, buying clothes/shoes and holidays on a scale of 0 (no impact) to 10 (highest impact) (Gabe-Walters and Thomas, 2021).

DATA AND STATISTICAL ANALYSIS

By assigning each patient a number in sequential order to preserve anonymity, descriptive demographic data was entered into MS EXCEL from clinical notes. Continuous variables were reported as a mean with standard deviation and categorical data as frequency. Differences in pre- and post-intervention were analysed using paired samples t-test with 95% confidence interval to examine the effect. A descriptive account of the resources and associated costs was captured to give an overall cost (e.g. primary care, secondary care, medication and dressing costs) and valued in pounds sterling using a price year of 2021/2022. The costs were determined from national published sources of the *British National Formulary* (BNF, 2023), 2020/2021 National Cost Collection Data (NHS England,

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Table 3: Wound size and BLS staging baseline and post six months

Variable	Pre (baseline)		Post (six months)			
	n=50	(%)	n=43	(%)	Mean diff	p-value
Wound Size						
Small <10cm²	9	(18)	6	(14)	0.40	<0.001
Medium 10–25cm²	5	(10)	1	(2)		
Large >35cm²	5	(10)	0	(0)		
General maceration	2	(4)	1	(2)		
Multiple areas	7	(14)	1	(2)		
N/A	22	(44)	34	(79)		
BLS staging						
Stage 0 (latent)	0	(0)	0	(0)	-0.40	0.004
Stage I (early)	1	(2)	0	(0)		
Stage 2 (established)	2	(4)	10	(23)		
Stage 3a (complex unilateral)	6	(12)	11	(26)		
Stage 3b (complex bilateral)	41	(82)	22	(51)		

Table 4: EQ5D5L and VAS health scores and LYMPROM©

Health-related quality of life				95% Confidence interval of the difference			
QOL	N	Mean	Std. Dev.	Mean	Lower	Upper	p-value
EQ5D5L score pre	40	0.445	0.306	0.061	-0.020	0.141	0.134
EQ5D5L score post	40	0.506	0.261				
VAS health score pre	40	60.13	25.861	9.55	2.2	16.9	0.012
VAS health score post	40	69.68	19.241				
LYMPROM©	N	Mean	Std. Dev.	Mean	Lower	Upper	p-value
Pain pre	40	4.80	3.31	-1.48	-2.61	-0.34	0.012
Pain post	40	3.33	2.24				
Heaviness pre	40	6.23	2.96	-1.45	-2.29	-0.61	0.001
Heaviness post	40	4.78	2.74				
Shopping for clothes pre	33	6.94	2.95	-1.18	-2.39	0.03	0.055
Shopping for clothes post	33	5.76	3.08				
Body image pre	33	6.09	3.54	-2.27	-3.83	-0.72	0.006
Body image post	33	3.82	3.48				

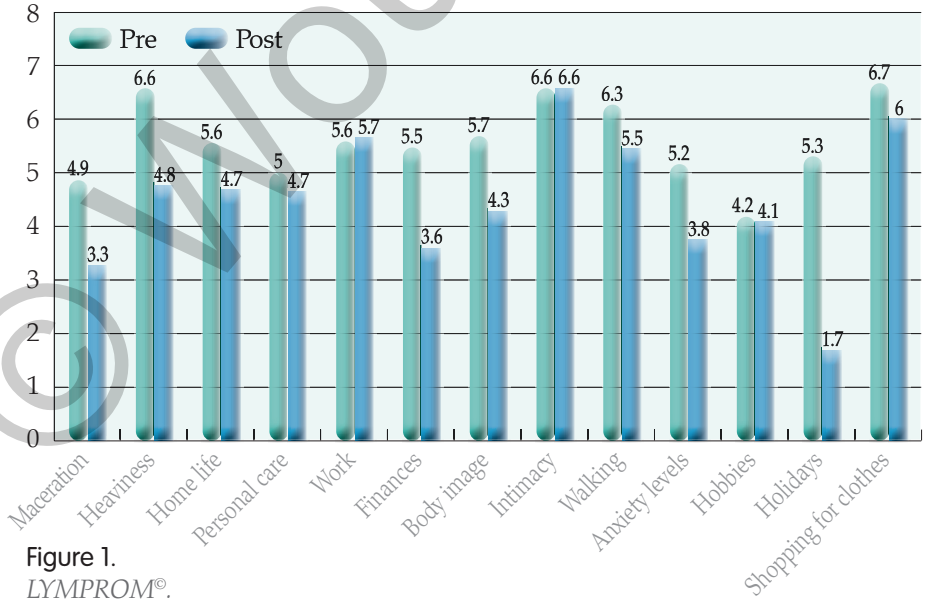

Figure 1.
LYMPROM©.

2022), and Personal and Social Services Research Unit (PSSRU, 2022). Results were analysed using MS EXCEL and IBM SPSS Statistics for Windows, version 26. A p-value <0.05 was considered statistically significant.

RESULTS

50 patients were provided with the compression wrap system of whom 18 were male (36%) and 32 female (64%), with a mean age of 67.8 years (range 18–100 years). Average BMI was 43.2 kg/m² (range 23.7–71kg/m²). The majority of patients (86%) had bilateral lymphoedema and 74% were classed as vulnerable or worse in the Rockwood Frailty Score. Further, 82% of the patients were recorded as complex in both the BLS and Lymphoedema Wales severity outcomes. Demographic data was captured (*Table 1*). Lymphoedema was located only below the knee (distal) in 52% and extended to the thigh region (proximal) in 48%; only eight people (16%) did not have foot swelling (*Table 2*).

Over half of the patients had a wound (56%) at onset of using the compression wrap system. These wounds ranged from being classified as small, <10cm², to macerated areas (*Table 3*). Analysing the data from baseline to six months highlights a statistically significant (p-value <0.001) reduction of wound presence from 56% to 21%. BLS severity outcomes also reduced in complexity from 94% to 77%, which again was statistically significant (p-value <0.004).

Circumferential measurements were recorded at baseline and post-intervention using circumferential tape measurements at 4cm intervals. Although the total right limb mean volume reduced from 11,228mls to 9,857mls and the total left limb mean volume reduced from 12,136mls to 10,410mls, the results were not statistically significant at p<0.299 and p<0.140 respectively. Episodes of cellulitis reduced from a reported 22 in the previous six months (two in hospital, 19 at home) to seven episodes post intervention (one in hospital and six at home).

Table 5: LYMPROM© and grouped health scores

LYMPROM©	N	Mean	Std dev	Mean	Lower	Upper	p-value
Physical health score pre	40	17.03	8.75	-3.48	-5.94	-1.01	0.007
Physical health score post	40	13.55	5.92				
Social health score pre	40	25.60	17.08	-2.85	-7.95	2.25	0.265
Social health score post	40	22.75	11.82				
Emotional health score pre	40	11.63	8.37	-1.70	-4.84	1.44	0.280
Emotional health score post	40	9.93	7.55				

Table 6: Intervention and resource costs

Intervention and resource costs				95% Confidence interval of the difference			
	N	Mean	Std dev	Mean	Lower	Upper	p-value
Cost dressing products pre	50	£269.4	£277.9	-£82.1	-£187.0	£22.9	0.123
Cost dressing products post	50	£187.4	£321.6				
Costs community nurse pre	50	£942.1	£1,134.2	-£298.3	-£647.2	£50.7	0.092
Costs community nurse post	50	£643.9	£1,371.9				
GP pre	50	£16.7	£39.8	-£11.2	-£24.6	£2.2	0.100
GP post	50	£5.5	£21.9				
Emergency department pre	43	£35.8	£120.4	-£14.3	-£60.4	£31.7	0.533
Emergency department post	43	£21.5	£79.4				
Cellulitis hospital pre	43	£162.8	£745.8	-£81.4	-£368.2	£205.4	0.570
Cellulitis hospital post	43	£81.4	£533.7				
Cellulitis home pre	43	£40.2	£91.9	-£26.8	-£54.4	£0.8	0.057
Cellulitis home post	43	£13.4	£39.6				
Total costs pre	43	£1,472.9	£1,721.2	-£383.7	-£974.0	£206.7	0.197
Total costs post	43	£1,089.2	£1,797.3				

Although 50 patients were assessed at baseline, this reduced to 43 at the six-month mark. The attrition was due to two deaths and five lost to follow-up. Other missing data was due to not having weighing scales present in clinic or information not captured at the time of review.

PROMS AND HEALTH-RELATED QUALITY OF LIFE

Table 4 details the change for the EQ5D5L, visual analogue scale (VAS) and LYMPROM©. Although both QOL scores improved, only the VAS health score demonstrated statistically significant improvements in general health (p<0.012).

LYMPROM© confirmed statistically significant improvements in pain, heaviness, shopping for clothes and shoes, and body image. Although LYMPROM© improved in other areas (*Figure 1*), these were not statistically significant.

When LYMPROM© was analysed into social, physical and emotional health, only physical health was statistically significant (p<0.007) (*Table 5*).

INTERVENTION AND RESOURCE USE

The mean resource utilisation for dressing consumables (including bandages, compression garments), staffing costs for community/lymphoedema staff, GPs and emergency department admissions for cellulitis treated at hospital or at home are shown in *Table 6*. At baseline, there had been considerable healthcare input in the six-month period before receiving the compression wrap system. Community nurse visits showed the highest frequency of resource inputs, with mean number of visits per patient being 11.6. At six months after application of the compression wrap system, visits had reduced to 9.1, but this was not statistically significant (p-value 0.09).

Episodes of cellulitis reduced with the use of the compression wrap system from 22 pre- to seven post-intervention. The number of people hospitalised due to cellulitis also demonstrated a reduction of 50% with an average per patient cellulitis cost reducing from £203 to £95. Lastly, dressing consumables also reduced from £269.4 to £187.4, including staff intervention and compression wrap system cost. Even though the mean reduction per patient was £383.70, the intervention and resource use did not show statistically significant results (p-value 0.197).

DISCUSSION

To the best of the authors' knowledge, this is the first evaluation of this kind looking at the cost, impact and outcomes of using a compression wrap system demonstrating statistically significant improvements in specific outcomes. A strength of the evaluation is the use of validated outcome tools with a larger population (50) than previous studies. As well as general health improvements reported by the EQ5D5L, this evaluation captured PROMs via LYMPROM©, with statistical significance in the elements making up the physical health score. It is recognised that the phenomenon of effort justification may partly explain the improved PROM scores, i.e. the novelty of using a new product could elevate the perceived value of the benefit. However, the work score did not improve despite patients reporting that the compression wrap system was comfortable and the ability for self-adjustments made them feel more in control. However, a factor affecting this particular score was the high mean age, BMI and frailty of the cohort. Further study with an exclusively working population would be interesting.

As with previous studies (Williams, 2016; Partsch, 2019), the mean volume measurements decreased in both limbs. However, in this evaluation, they were not statistically significant. The selection of patients may account for this difference. Of the 50 patients,

60% were previously managed in multilayered bandaging and 36% were already in compression garments prior to the compression wrap system intervention, therefore the worst of the oedema may already have been reduced.

Importantly, the indicator for the presence of a wound reduced with the introduction of the compression wrap system. This is similar to the findings of Lawrence (2014) and Nugent (2013). Even though the average age of the patient was nearly 68, with a high mean BMI of 43, and 74% of the cohort being vulnerable, the data showed that all types of wounds improved, including small, medium, large and macerated areas. This may imply that improvements to wounds can occur even when there are more risk factors such as frailty and high BMI. Further, in this evaluation, both pain and heaviness reduced and were statistically significant; this in turn showed an impact in improvements in EQ5D5L. Such implications are important and worthy of further investigation given the increasing challenge of obesity and frailty within caseloads.

Robust economic evaluations of using compression wrap system-type products compared to normal care are rare. By nature, multilayered bandaging is resource heavy in staffing and products, so using a compression wrap system may provide significant cost savings but requires further investigation. In this evaluation, community nurse visits lessened as did use of dressings such as 'superabsorbents'. Even emergency department visits, GP calls and cellulitis episodes decreased. While these factors did not reach statistical significance, they warrant further study. Williams (2016) reported a negative aspect of compression wraps to be the initial expensive outlay, but this evaluation found that over six months there was a mean cost reduction of over £383.70 per patient, which included the purchase price of the compression wrap system.

An interesting emergent question was 'why and when do practitioners choose a compression wrap system over other treatments, such as compression hosiery and multilayer bandaging?' Usefully, this evaluation has shown that older age, frailty and BMI are not a barrier to this intervention. These products clearly have the potential to maximise self-management and patient independence; particularly with complex patients whose care can be resource heavy. For practitioners to make efficient and effective use of compression wrap systems, specific guidance based on continued research in relation to specific patient types would be useful. The potential in terms of improved wound care, reduced infection and enhanced physical health scores is too important to ignore.

'This evaluation has highlighted that the potential of compression wrap systems for positive patient health impact and cost savings should not be ignored. It has never been more important to maximise self-management and patient independence, particularly with some of our most complex, obese and frail patients.'

It was a strength of the study that the population was as 'typical of caseload' as possible, but future research with a more homogenous participant population may identify which groups would show greatest cost benefits from the use of a compression wrap system compared to standard practice.

LIMITATIONS

Some patients were lost to follow-up, thus key measurements were unable to be captured. Nevertheless, 43/50 (86%) patients' data at six months is encouraging. While the population of the evaluation was limited to Wales, the demographics are clearly described and are likely to be representative of many UK services.

CONCLUSION

This evaluation has highlighted that the potential of compression wrap systems for positive patient health impact and cost savings should not be ignored. It has never been more important to maximise self-management and patient independence, particularly with some of our most complex, obese and frail patients. The evaluation findings regarding improved wound care, reduced infection and improved physical health scores can be further corroborated with research within specific demographic groups. Patient-reported outcomes and a robust resource evaluation allowed the authors to show that the purchase costs of the compression wrap system over the relatively short six-month period was economically justified and delivered tangible, measurable benefits to the patient and health system. JCN

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Conflicts of interest

None declared.

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Revalidation Alert

Having read this article, reflect on:

- How lymphoedema affects patient quality of life
- Your knowledge of compression therapy
- The findings of this evaluation and how they could change your practice
- The benefits of adjustable compression wrap systems.

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KEY POINTS

- Increasing pressures on healthcare resources require constant evaluation of the efficiency and effectiveness of provision, particularly for the rising number of vulnerable, elderly and obese patients.
- Since the pandemic, the complexity and incidence of oedema cases have increased, causing a rise in venous ulceration, falls, and cellulitis infections within NHS Wales.
- This evaluation explores the clinical benefit, impact, outcomes and cost-efficiencies of using an adjustable compression wrap system instead of previous care.
- Wraps have been shown to produce more consistent and reliable pressure than compression bandages when self-adjusted by patients and give greater independence from the therapists.
- An interesting emergent question was 'why and when do practitioners choose a compression wrap system over other treatments, such as compression garments and multilayer bandaging?'
- Patient-reported outcomes and a robust resource evaluation allowed the authors to show that the purchase costs of the compression wrap system over the relatively short six-month period was economically justified and delivered tangible, measurable benefits to the patient and health system.

Prevention and management of MARSI at dressing change: a clinical evaluation

Cerys Stowe, Rebecca Sacree, Alexandra Freitas

Medical adhesive-related skin injury (MARSI) is an occurrence in which erythema and/or other manifestation of cutaneous abnormality (including, but not limited to, vesicle, bulla, erosion, or tear) persists in patients where an adhesive device/dressing/pouch has not been correctly applied and/or removed. A topic of interest to researchers since 2013, studies have focused on developing best practices around the application and removal of medical adhesives, preventative strategies, and the assessment and treatment of such injuries. This article contains a recent clinical evaluation to assess the performance and efficacy of non-sting adhesive remover wipes and a spray (LIFTEEZ Medical Adhesive Remover Wipes and LIFTEEZ Aerosol Spray by Medicareplus International) in preventing and treating MARSI on patients with peripherally inserted central catheter (PICC) lines, Hickman lines, and other adhesive film dressings. The review provides nurse and patient evaluations, alongside data collection on product performance.

KEYWORDS:
■ Medical adhesive-related skin injury ■ Product evaluation
■ Patient feedback ■ Product comparison

Medical adhesive-related skin injury (MARSI) is a common issue in patients across a range of clinical settings. However, it is still an underestimated and often poorly understood condition, despite literature on the subject growing. It is also considered as a preventable harm (Hitchcock et al, 2021).

In short, MARSI can occur when an adhesive device/dressing/pouch is not correctly applied and/or removed, and/or if a patient has fragile skin, such as in the elderly and neonates or patients with other comorbidities. This improper application and/or removal can in turn lead to damage to the skin around the site and associated areas (Hitchcock et al, 2021).

MARSI was first described by McNichol et al in 2013. The researchers engaged a panel of 23 opinion leaders in an effort to develop best practices around the application and removal of medical adhesives, preventative strategies, and the assessment and treatment of such injuries.

The consensus statement arrived at by the panel laid out definitions, statements, and research priorities for the treatment of MARSI. McNichol et al (2013) define MARSI as:

An occurrence in which erythema and/or other manifestation of cutaneous abnormality (including, but not limited to, vesicle, bulla, erosion, or tear) persists 30 minutes or more after the removal of the adhesive.

THE SKIN

The skin is the largest organ in the body. It plays a crucial role in the health of individuals by providing protective, homeostatic, and immunological functions. (Maranduca et al, 2020). Additionally, the skin has a tightly controlled pH range, thought to be naturally below 5 (Lambers et al, 2006), making it somewhat acidic. This pH control is necessary for the proper growth and function of the skin's natural flora, which also has critical immunological and protective functions (Schmid-Wendtner and Korting, 2006; Dowsett and Allen, 2013).

One of the main functions of the skin is as a mechanical barrier. In essence, the skin forms a protective, waterproof barrier against trauma and external factors. Without the skin, the internal structures of the body would be exposed to damage from ultraviolet (UV) radiation, mechanical injury, moisture, pathogens, and chemicals (Lopez-Ojeda et al, 2022).

The skin is composed of three main layers — the epidermis, dermis, and hypodermis (Lopez-Ojeda et al 2022; Yousef et al, 2022). Each layer differs significantly in both function and anatomy, with each filling a distinct role in the skin's function.

The epidermis is composed of five layers:

- Stratum basale (stratum germinativum)
- Stratum spinosum
- Stratum granulosum

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- Stratum lucidum
- Stratum corneum.

The primary cell types found in the epidermis are keratinocytes. These cells excrete lipids and help to form the skin's waterproof barrier. Melanocytes, which produce melanin to protect against UV radiation, are also found in the epidermis, along with Langerhans cells with immunological functions and Merkel cells with sensory functions.

Below the epidermis lies the dermis. The dermis is composed of two layers — the papillary layer and the reticular layer. The dermis is where the sweat glands, hair, hair follicles, sensory neurons, blood vessels, and muscles are found.

The deepest layer of the skin is the hypodermis. The hypodermis, also called the subcutaneous fascia, is mostly composed of adipose lobules, as well as some hair follicles, sensory neurons, and blood vessels.

To fulfil its function properly, it is crucial that the skin barrier is kept intact (Proksch et al, 2008). When the barrier is broken, external vectors are able to penetrate into deeper tissues, causing damage and illness. Although the skin contains immune cells, these are not always enough to prevent illness or infection (Nguyen and Soulika, 2019).

In cases where the skin is repeatedly subject to insult, such as in MARSI, the affected areas are susceptible to becoming inflamed, infected, and damaged (Fumarola et al, 2020).

MARSI

Covering wounds with dressings that adhere directly to the skin with an adhesive is common to promote healing and protect the wound from infection. In the authors' clinical experience, when adhesives are properly applied and removed, and the periwound skin is taken care of with clinically-proven skin protectant products, such as Medi Derma-S Barrier Film and Medi Derma-PRO Skin Protectant Ointment & Cleanser, it is less likely that patients will experience any negative effects from the adhesive.

However, adhesive dressings, devices, stoma bags can be incorrectly applied or removed and patients can experience damage or irritation (Hofman et al, 2023). That said, it is important to note that adhesive irritation or damage may not be due to any fault of clinical staff applying or changing dressings, as some patients are more vulnerable to skin irritation and damage due to factors including, but not limited to:

- Allergies — particularly to traditional materials such as acrylates
- Age — both elderly patients and neonates/infants are at increased risk
- Malnutrition
- Dehydration
- Existing dermatological conditions, such as eczema, dermatitis, etc
- Other existing medical conditions, such as diabetes, renal insufficiency

(Serra et al, 2018).

If this irritation lasts for 30 minutes or more, it is classified as MARSI (McNichol et al, 2013). MARSI occurs after the superficial layers of skin have been removed by an adhesive dressing/device/stoma bag, leading to differing levels of skin damage. This damage may be minor irritation or severe, such as tension blisters or maceration.

There are three main types of MARSI:

- Mechanical — epidermal stripping/trauma, skin tears, tension injury/blisters
- Dermatitis — irritant contact, allergies
- Other — folliculitis, maceration

(LeBlanc et al, 2019).

In the authors' clinical experience, there is an unfortunate assumption that MARSI is often a 'necessary evil' when it comes to wound care, and that minor injuries are inevitable when applying and removing adhesive devices/dressings. However, this is not the case and MARSI is a preventable condition.

CLINICAL EVALUATION

In the authors' clinical experience, preventing and treating MARSI has become a subject of increasing interest in health care. There are proven strategies in place, such as proper application and removal of adhesive devices/dressings, regular cleansing (where applicable), and the use of medical adhesive removal sprays and wipes.

Medicareplus International partnered with the community paediatric team and tissue viability service at Hampshire Hospitals NHS Foundation Trust to conduct a clinical evaluation to assess the performance and efficacy of non-sting adhesive remover wipes and a spray.

The product tested was LIFTEEZ Medical Adhesive Remover Wipes and Aerosol Spray (Medicareplus International). The endpoints of interest were:

- Additional pain/stinging on the application of LIFTEEZ Medical Adhesive Remover
- Signs of skin stripping or trauma

on using LIFTEEZ Medical Adhesive Remover
- Ease of use
- Patient opinion
- Clinical condition
- Price/value for money
- Overall performance.

Method

Eight patients were evaluated over 30 days, with assessments performed during at least each dressing change. Patients had a combination of peripherally inserted central catheter (PICC) lines, Hickman lines, and other adhesive film dressings in place. The LIFTEEZ 50ml Aerosol Spray and Wipes were used during each dressing change. Wipes were used for five patients, with the aerosol being used for the other three.

Nurse and patient opinions were sought, alongside data collection on product performance compared to any competitor products, to determine whether LIFTEEZ spray and aerosol minimised pain, discomfort, and skin damage during the removal of adhesive devices/dressing.

Results

The results were split into two sections — patient assessment (patient attitudes towards LIFTEEZ use) and comparison with other products (Stowe and Freitas, 2023).

Patient assessment

Of the eight patients, all responded favourably to LIFTEEZ, and reported no pain/stinging on application. Moreover, there were no signs of skin stripping or trauma reported by any of the patients using LIFTEEZ.

A couple of patients shared their experience:
- The LIFTEEZ aerosol felt cold on their skin, but they were less distressed than previously
- The parents of a young patient were happy that the dressing change with LIFTEEZ was much quicker than previous dressing changes, and noted that their child was distressed for a far shorter time than previously.

Overall, LIFTEEZ Medical Adhesive Remover received positive feedback from the patient assessment. The feedback that the product was cold was noted but given the nature of the product, it is difficult to mitigate this outcome.

Comparison with other products

Five comparative endpoints were investigated with room for additional comments, as shown below:
- Ease of use — how easy is it to use/apply LIFTEEZ?
- Patient opinion — how did the patient feel about LIFTEEZ?
- Clinical condition — Did LIFTEEZ affect the clinical condition?
- Price/value for money — was LIFTEEZ fairly priced?
- Overall performance — how did LIFTEEZ compare overall?

As can be seen in *Table 1*, the patients responded either favourably or neutrally for all endpoints of LIFTEEZ when compared to other products previously used.

Patients 1, 5, 6, and 8 all reported that LIFTEEZ performed better for all endpoints measured, with 75% of those responses being 'excellent'.

The majority of patients responded favourably to LIFTEEZ with regards to value for money and overall performance — a positive response rate of 87.5% for these two endpoints. Ease of use followed closely, with a 75% positive response rate.

According to 62.5% of patients, their clinical condition was improved by using LIFTEEZ, with others reporting that their clinical condition remained unchanged.

Where it has been reported that some residue was left behind (one patient) after dressing change, in the authors' clinical opinion this may be attributed to improper cleaning. However, more data will be required to establish a statistically significant conclusion.

Table 1: Results of the evaluation's product comparison

Patient	Ease of use	Patient opinion	Clinical condition	Value for money	Overall performance	Additional comments
1	Excellent	Excellent	Better	Better	Excellent	Patient very sensory and reported it was cold but tolerated LIFTEEZ well. Dressing was easy to remove and left little residue. New dressing stuck well
2	Same	Same	Same	Same	Same	No comment
3	Same	Same	Same	Better	Better	No comment
4	Excellent	Same	Excellent	Better	Excellent	No comment
5	Excellent	Excellent	Excellent	Better	Excellent	No comment
6	Excellent	Better	Excellent	Excellent	Excellent	No comment
7	Excellent	Same	Same	Better	Better	Patient is very young and will most likely get upset at dressing changes. However, LIFTEEZ was easy to use and quickly removed the dressing. Not much was needed to slowly remove the old dressing. After appropriate cleaning, new dressing stuck well, so no obvious residue left
8	Excellent	Excellent	Better	Excellent	Excellent	Overall, the cost of the product will be less as the child usually requires at least three product sachets of liquid, whereas the LIFTEEZ aerosol will be used for multiple dressings

Overall, LIFTEEZ achieved a positive response rate of 72.5% across all endpoints.

Discussion

The responses to this evaluation were predominantly positive, presenting several noteworthy aspects in findings that warrant further discussion.

In the patient assessment, it was uniformly reported that the application of LIFTEEZ was pain-free and did not cause any stinging sensation, nor were there any indications of skin trauma or stripping. This highlights its potential as a gentle yet effective treatment option for management of MARSI, skin stripping and skin tears. Nonetheless, when compared to other similar products, patient opinion was divided, with half expressing neutral views. This split suggests variability in patient preferences and underscores the importance of individualised patient care in clinical practice.

From a clinical perspective, the assessment of LIFTEEZ not only focused on efficacy and safety, but also considered critical endpoints such as price/value for money and overall performance, with 87.5% of patients responding positively. This suggests that LIFTEEZ offers significant value for its cost, aligning well with patient expectations and satisfaction metrics.

Additionally, another vital endpoint, ease of use, showed a 75% positive response rate. This level of user-friendliness underpins the practical benefits of LIFTEEZ, highlighting its convenience and accessibility in daily use.

This product evaluation involved only eight patients; further case studies and evaluations may be required for statistically significant findings, and to unequivocally recommend LIFTEEZ Medical Adhesive Remover Wipes and Aerosol Spray for use in the prevention of MARSI. However, these endpoints collectively reinforce LIFTEEZ's standing as an option in its category, combining economic benefits with effective performance and ease of application, thereby supporting its potential for broader acceptance in clinical settings. JCN

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KEY POINTS

- Medical adhesive-related skin injury (MARSI) is an occurrence in which erythema and/or other manifestation of cutaneous abnormality persists in patients where an adhesive device/dressing/pouch has not been correctly applied and/or removed.
- MARSI should be considered a preventable injury.
- Preventing and treating MARSI has become a subject of increasing interest in health care.
- A recent clinical evaluation of eight patients was undertaken to assess the performance and efficacy of non-sting adhesive remover wipes and a spray (LIFTEEZ Medical Adhesive Remover Wipes and LIFTEEZ Aerosol Spray by Medicareplus International) in preventing and treating MARSI.
- The responses to this evaluation were predominantly positive, presenting several noteworthy aspects in findings.

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Diverticular disease and fibre: to restrict or not to restrict?

Patrick Ward-Ongley

This article explores the research behind diverticular disease and its dietary management, with a focus on dietary fibre. Diverticula, sac-like protrusions in the colonic wall, are extremely prevalent in older people living in Western countries and range from asymptomatic (diverticulosis) to moderately symptomatic (diverticular disease) to severely symptomatic (diverticulitis). Diet and lifestyle are implicated in the development of these conditions, as demonstrated by the vast increase in prevalence as countries become more industrialised and follow a Western dietary pattern. Dietary fibre is a particular nutrient of interest. Contrary to prior dogma, research suggests that individuals with diverticular disease should actually strive for a high fibre diet to reduce the risk of developing further diverticula and prevent progression to diverticulitis. The dietary management of the symptoms of diverticular disease is not well understood. Vigorous physical activity may reduce the risk of diverticulitis. Community nurses can help their patients to avoid harmful and unnecessary dietary restrictions by using the information in this article.

KEYWORDS:
■ Diverticular disease ■ Diverticulitis ■ Diverticulosis
■ Dietary fibre ■ Low fibre diet ■ Diet

Sac-like protrusions in the muscular layer of the colonic wall, called diverticula, are highly prevalent in people living in Western countries, especially older adults. The presence of colonic diverticula increases to 50% of individuals around 60 years of age, whereas only about 5% of the population are affected before the age of 40 (Barbaro et al, 2022).

There are three diagnostic terms linked to the presence of colonic diverticula which are frequently confused by the public and healthcare professionals alike:

- Diverticulosis
- Diverticular disease
- Diverticulitis.

When an individual presents with diverticula which are asymptomatic, they are diagnosed with diverticulosis, accounting for ~80% of people with colonic diverticula (Carabotti et al, 2017). When an individual's diverticula are symptomatic (*Table 1*), they are diagnosed with diverticular disease. Diverticulosis and diverticular disease can both progress into diverticulitis, which is the presence of inflammation within, or around, a single diverticulum or several diverticula causing significant symptoms (Schultz et al, 2020; *Figure 1*).

Approximately 4–15% of individuals with diverticulosis will develop diverticulitis (Hawkins et al, 2020). Diverticulitis can present as acute or chronic, and complicated or uncomplicated. In the vast majority (~90%), diverticulitis is uncomplicated, meaning the inflammation is limited to the colonic wall and surrounding tissue and can often be safely managed in the outpatient setting (Hawkins et al, 2020). In complicated diverticulitis, however, perforation, local or distant abscess, fistula, stricture or obstruction can occur, indicating surgery in many cases (Schultz et al, 2020). Clearly, diverticulitis in particular is to be avoided, and this will be a focus point of this article.

Diverticular disease is most commonly diagnosed via colonoscopy or sigmoidoscopy, although it can also be diagnosed via computed tomography (CT) scan (National Institute for Health and Care Excellence [NICE], 2019).

Beyond increasing age, other risk factors for the formation of colonic diverticula include (Hawkins et al, 2020; Peery et al, 2022):

- Genetic factors (which account for ~50% of the risk for diverticulitis)
- Use of non-steroidal anti-inflammatory drugs (NSAIDs), aspirin, steroids and opioids
- Smoking
- Sedentary lifestyle
- Low intake of dietary fibre.

DIET AND DIVERTICULAR DISEASE

The Western dietary pattern, which can be characterised by an emphasis on refined grains (e.g. white flour products), red and processed meats, French fries (chips) and sweets, appears to have played a significant role in the increased prevalence of diverticular disease and diverticulitis (Strate et al, 2017). Indeed, increasing industrialisation and greater spread of the Western dietary pattern have led to high rates of diverticular disease in other parts of the world such as Asia and Africa (Hawkins et al, 2020). Astoundingly, autopsy studies have shown a 1% prevalence of diverticulosis in Japanese who live in Japan, but a 50% prevalence of Japanese living in the United States (Stemmermann, 1970).

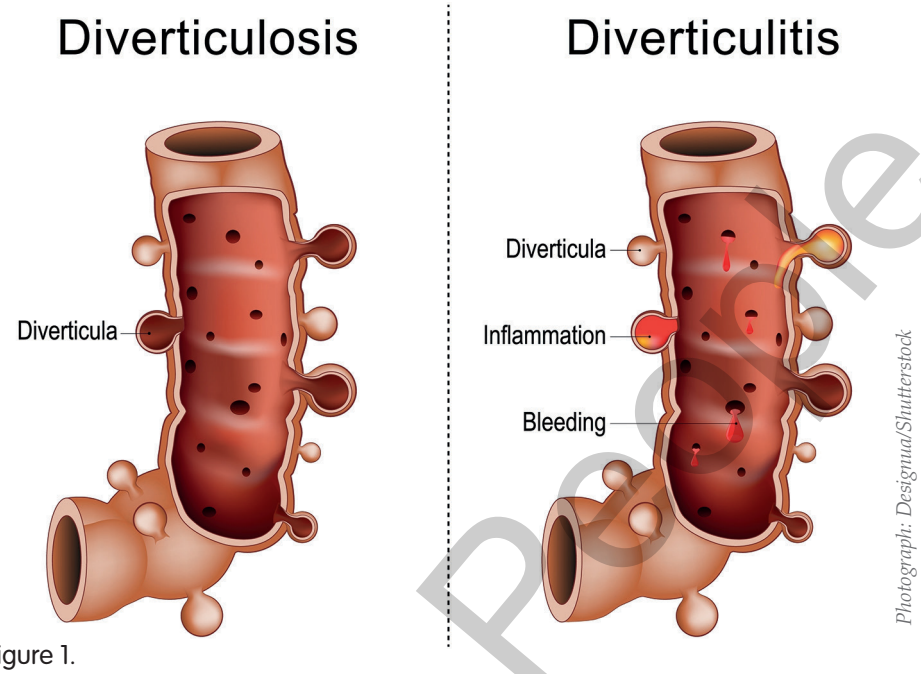
Patrick Ward-Ongley, oncology specialist dietitian, Salisbury NHS Foundation Trust

DIETARY FIBRE

Dietary fibre is made up of carbohydrate polymers with three or more monomeric units, which are neither digested nor absorbed in the human small intestine and are completely or partially fermented in the colon (Stephen et al, 2017). Dietary fibre was dominant in human diets for millions of years, however this changed dramatically following the Industrial Revolution, whereby refined grains largely replaced whole grains (Fu et al, 2022; *Figure 2*).

Dietary fibre, or lack thereof, is a particular focus in diverticular disease. Prevailing theory suggests that low fibre diets lead to a reduced stool volume, increased intraluminal pressure on the colonic wall, and decreased colon diameter, thus increasing formation of colonic diverticula (Hawkins et al, 2020). Thus, a high dietary fibre intake offers a potential solution to prevent the development of further diverticula in those with diverticular disease.

Yet, paradoxically, patients with diverticular disease were advised up until only recently to limit dietary fibre intake and strictly avoid eating nuts, corn, popcorn and seeds, in particular, to prevent diverticulitis. This stemmed from the theory that nuts, seeds, popcorn and corn were particularly likely to abrade the mucosa, or to lodge within small diverticula causing infection or inflammation (Strate et al, 2008). Subsequent epidemiological evidence found that consumption of these foods does not increase the risk of diverticulitis and may actually prevent it (Hawkins et al, 2020). While this myth seems to persist (see *Practice point*), the reality is that what precipitates diverticulitis is not well understood.



Photograph: Designua/Shutterstock

Figure 1.
Difference between diverticulosis and diverticulitis of the colon. The close up image of part of the large intestine on the right shows diverticula, bleeding and inflammation.

The community of micro-organisms in the gut, known as the gut microbiota, have become an area of huge research interest recently, with consensus suggesting that the gut microbiota has vast outreaching effects on the entire body (Hajiagha et al, 2022). It is unsurprising that the gut microbiota has been implicated in the development of diverticular disease and diverticulitis (Reitano et al, 2023).

While there is much interest in commercial probiotics to modulate the gut microbiota, the most evidence-based dietary approach to support a diverse, healthy gut microbiota is to follow a high dietary fibre eating pattern, from a diverse range of foods (Gill et al, 2021). Dietary fibre is an important source of energy for intestinal microbes, which metabolise complex carbohydrates into short-chain fatty acids (SCFAs). SCFAs promote the generation of mucus and antimicrobial peptides, regulating immune balance, intestinal barrier function, and appropriate cell proliferation rates (Strate and Morris, 2019).

Current guidelines suggest that those with diverticular disease or diverticulosis should eat a high fibre diet, in line with generic healthy eating recommendations (Hawkins et al, 2020). No formal definition of a high fibre diet exists, however Public Health England (PHE, 2016) recommends 30g of fibre per day, a quantity shown to be sufficient to reduce (Reynolds et al, 2019):

- All-cause mortality
- Colorectal cancer incidence
- Type 2 diabetes, stroke and coronary heart disease incidence
- Bodyweight, haemoglobin A1c (HbA1c), total cholesterol and systolic blood pressure.

An adequate fluid intake becomes even more important for individuals following a high fibre

Table 1: Differentiating diverticulosis, diverticular disease and diverticulitis based on symptoms (Schultz et al, 2020)

Diagnosis	Symptoms
Diverticulosis	▸ No associated symptoms
Diverticular disease	▸ Pain in the lower left side of the abdomen (or on the right side in a small number of people, particularly those of Asian origin) ▸ Abdominal pain which gets worse after eating, and gets better after defecation or flatus ▸ Constipation ▸ Diarrhoea ▸ Blood in the stool ▸ Bloating
Diverticulitis	▸ Severe, constant abdominal pain ▸ High temperature ▸ Bleeding or passing mucus from the anus

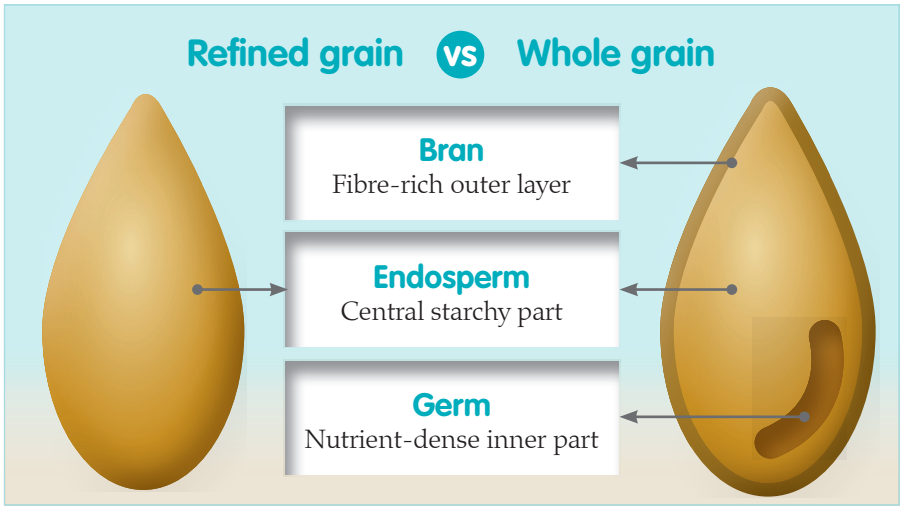


Figure 2.
Nutritional comparison of refined versus whole grains. Adapted from: www.eufic.org/en/whats-in-food/article/qa-whole-grain.

diet, as some fibres have high water holding capacities (Robertson and Eastwood, 1980). It is often suggested in practice to increase dietary fibre intake gradually to help minimise gastrointestinal symptoms, such as bloating, flatulence and intestinal cramps (Bellini et al, 2021).

Evidence regarding the dietary management of an acute diverticulitis episode is limited. However, it has been suggested that those with uncomplicated diverticulitis continue to follow their normal diet and do not implement restrictions, as no benefit has been observed from abstaining from eating or following a liquid diet (Dahl et al, 2018). Following the resolution of the uncomplicated diverticulitis episode, a high dietary fibre intake is recommended simply for general health. This has not been shown to prevent recurrence of diverticulitis (Dahl et al, 2018). On the other hand, when complicated diverticulitis develops, individuals should follow the advice of their managing hospital consultant, who may well suggest a reduced dietary fibre intake if they are deemed to be at risk of bowel obstruction (Ionita-Mîndrican et al, 2022).

Table 2: Comparison of low fibre foods, sources of fibre and high fibre foods, based on nutritional values from PHE (2014)

Low fibre foods	Foods considered a source of fibre*	High fibre foods*
White flour products: white and sourdough bread, crumpets, croissants, pancakes White rice, white potato, white pasta Corn flakes, Rice Krispies™	Multigrain or (white) seeded bread Whole wheat pasta Sweet potato, baby potato Brown rice, wild rice	Wholemeal bread Bran flakes, Weetabix™, Shreddies™, oats muesli, Cheerios™, Fruit'n Fibre™
Fruit juice, smoothies†	Banana, apple, pear, orange, raisins, avocado and& most other fruits	Broccoli, cauliflower, peas, sweetcorn, carrots, parsnips and most other vegetables Strawberries, blueberries, raspberries
Meat, fish, eggs		Chickpeas, beans, lentils, Quorn™
Crisps, crackers	Multigrain crackers, rice cakes (made from brown rice)	Nuts and seeds, Ryvita™, popcorn

* As per Stephen et al (2017), foods considered a source of fibre provide at least 3g fibre per 100g, or at least 1.5g fibre per 100kcal, and foods considered high fibre provide at least 6g fibre per 100g or at least 3g fibre per 100kcal
† Shop-bought smoothies tend to be low fibre as they are partly, or mostly, made with juice. Blending fruit does not reduce the fibre content (Crummet and Grosso, 2022)

Practice point

In the author's experience, people with diverticular disease are still frequently told to follow low fibre diets, or avoid certain foods like nuts and seeds, by healthcare professionals in primary care. However, this stems from an old myth which was thoroughly debunked over 15 years ago. High intakes of dietary fibre actually appear to help, by reducing formation of further diverticula and reducing risk of diverticulitis (Hawkins et al, 2020). The perpetuation of this myth can cause significant distress for those with diabetes or obesity; conditions for which these individuals were already given opposing advice — to prioritise high fibre foods. They understandably no longer know what to eat and stand to miss out on the vast benefits of dietary fibre.

RED MEAT

Total red meat intake, whether processed (e.g. bacon/sausages) or unprocessed (e.g. roast lamb/beef mince), has been associated with an increased risk of diverticulitis in observational research; swapping unprocessed red meat for a serving of poultry or fish has been associated with a reduced risk (Cao et al, 2018). Prioritising alternative protein sources, like legumes, poultry and fish in the diet would seem sensible for those with diverticulosis or diverticular disease to minimise the risk of diverticulitis.

ALCOHOL

A recent, large prospective study found that women who consumed >30g (~4 units) of alcohol per day had an increased risk of diverticulitis compared to women who did not drink (Gunby et al, 2023). In this study, women who consumed >15g (~2 units) of alcohol per day

and do, or used to smoke, had the highest risk of diverticulitis. Nonetheless, there still remains a lack of research looking at alcohol intake and diverticular disease outcomes (Hawkins et al, 2020), therefore it is difficult to give firm recommendations.

OBESITY

Obesity, defined as a body mass index (BMI) of 30kg/m^2 or greater, has been associated with an increased risk of diverticulitis (Mari et al, 2022). Specifically, meta analysis by Aune et al (2017) identified a 31% and 20% increase in the relative risk of diverticulitis and diverticular disease complications, respectively, for each 5-point increase in BMI. Further, individuals with obesity have an increased risk of post-surgical complications (Kassahun et al, 2022). Given this, a diagnosis of diverticulosis or diverticular disease in those with obesity adds further rationale to a target of weight loss.

DIETARY MANAGEMENT OF DIVERTICULAR DISEASE SYMPTOMS

Symptoms of diverticular disease strongly overlap with those present in irritable bowel syndrome (IBS; *Table 3*) and can place a significant burden on patients and healthcare systems alike (Reddy and Longo, 2013). It appears that, similar to IBS, the symptoms of diverticular disease may involve visceral hypersensitivity (i.e. a low threshold for pain in the internal organs) and changes in colonic motility (Hawkins et al, 2020). European guidelines suggest that it is unclear whether diverticular disease can be considered a disease of its own or whether it represents the coexistence of IBS and diverticulosis (Schultz et al, 2020). Diverticular bleeding, leading to blood in the stools, is usually painless, therefore it may not help to differentiate between IBS and diverticular disease (Hawkins et al, 2020).

Despite the significant burden of diverticular disease, research assessing how diet modulates its symptoms are scarce, meaning that no dietary recommendations can be made in this regard (Eberhardt et al, 2019; Schultz et al, 2020; Kruis et al, 2022).

A substantial evidence base exists demonstrating that a diet low in certain types of carbohydrates, namely fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAPs), can reduce gastrointestinal symptoms in a majority of individuals with IBS (Black et al, 2022). Despite the potential crossover between IBS and diverticular disease, to date there do not appear to be any studies assessing a low FODMAP diet's efficacy in diverticular disease, although there is speculation that it would help to prevent diverticulitis (Uno and van Velkinburgh, 2016).

DIETETIC REFERRAL

To the best of the author's knowledge, diverticular disease in and of itself does not meet the referral criteria for dietary input from an NHS dietitian in at least the majority of dietetic services. This relates to the fact that there is a lack of research relating to the efficacy of any diet for symptomatic improvement. That said, those with a diagnosis of IBS can be referred to local dietetic services for first-line dietary IBS advice and consideration of the aforementioned low FODMAP diet. Until comprehensive diet-diverticular disease trials are conducted, this will remain an area of uncertainty.

PHYSICAL ACTIVITY

Strate et al (2009) studied 47,228 US males in the Health Professionals Follow-up Study cohort who were all initially free of diverticular disease. Physical activity was assessed every two years, during 18 years of follow-up. Increasing levels of vigorous physical activity, defined as activities with a metabolic equivalent (MET) score of 6 or more (see Ainsworth et al, [1993] for the relevant compendium of activities) were associated with a decreased risk of diverticulitis and diverticular bleeding. A later meta-analysis (Aune et al, 2017) found a 26% reduction in the risk of diverticulitis for the highest versus lowest levels of vigorous physical activity. Given the vast benefits of physical activity (Dhuli et al, 2022) and its potential to reduce the risk of diverticulitis, its importance should be emphasised to individuals with diverticular disease.

CONCLUSIONS

Diverticular disease is an increasingly prevalent condition in older adults following a Western dietary pattern, with its associated high red meat and low dietary fibre intakes. Previously, people with diverticular disease were told to limit high fibre foods such as popcorn, corn, nuts and seeds for fear that they would cause diverticulitis. However, we now know this to be untrue, with the general consensus being that a high fibre intake can support primary prevention of diverticulitis. Dietary fibre has a host of other health benefits, meaning that the dietary approach for diverticular disease matches that for general metabolic health. Despite the symptom burden of diverticular disease, research looking at the dietary management of these symptoms is scarce. Vigorous physical activity can be encouraged as a means towards reducing the risk of diverticulitis. Community nurses can utilise this information to prevent their patients following unnecessary, restrictive diets which ultimately may cause harm and distress. **JCN**

Table 3: Symptom crossover between diverticular disease and IBS (Spiller, 2012)

Symptoms	Can be present in diverticular disease	Can be present in IBS
Abdominal pain	✓	✓
Bloating	✓	✓
Diarrhoea	✓	✓
Constipation	✓	✓
Alternating bowel habit	✓	✓

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Delegation of insulin administration in care homes

Ruth Horner, Alyson Wadsworth

The risk of developing type 2 diabetes increases with age and can lead to poorer outcomes for individuals and create greater demands on healthcare services. The *NHS Long Term Plan* (2019a) highlighted the need for more complex care to be provided in patients' homes and, with recognition of a decreasing community workforce, new ways of working and upskilling the workforce are required to provide integrated, person-centred care. Blended roles programmes focus on a commitment to develop education and competencies to build effective relationships and collaboration between independent care workers to provide individualised person-centred care.

KEYWORDS:
■ Blended roles ■ Care home support ■ Frailty ■ Diabetes
■ Delegation

The UK has an ageing population, with current figures showing that 11 million people in England are over the age of 65, equivalent to one in five (Age UK, 2023). It is predicted that by 2050 one in four people will be over the age of 65 (Office for National Statistics [ONS], 2018). The ageing process is often associated with decline in physical, social, and cognitive functions, which affect quality of life, impacting upon economic costs and increasing the need to access health and social care services. The *NHS Long Term Plan* (NHS England, 2019a) highlighted the importance of investment in primary and community care services to address the evolving healthcare needs of the population, including:

- An ageing demographic
- Increase in chronic conditions
- A growing demand for more personalised and accessible healthcare.

Ruth Horner, blended roles facilitator; Alyson Wadsworth, lead nurse — blended roles, practice education and care home support, both at Adult Community Division, Oldham Care Organisation, Northern Care Alliance NHS Foundation Trust

The increased demand on services for people with multiple long-term conditions requiring complex care is coupled with a decreasing number of community and district nurses — a fall of nearly 50%, which is further compounded by the crisis in social care (Royal College of Nursing [RCN], 2023). Thus, exploring new ways of working is needed to meet the demands of an ageing population.

This article discusses how new ways of integrated working between health and social care are being explored in Oldham community care division (Northern Care Alliance) and adult social care in Oldham, collaboratively with independent sector care workers.

Supporting the workforce and carers is one of the missions set out in the strategy document, *Improving health and care in Greater Manchester 2023–2028* (Greater Manchester Integrated Care Partnership, 2023), which promotes integration and partnership working, while recognising a period of extended austerity affecting public services, the aftermath of a global pandemic and the impact this has had system-wide — all of which reinforce the need for new ways of working.

Blended roles have been developed by the Greater Manchester adult social care transformation programme with one of the key priorities being 'living well at home'. Rather than assuming a need for new roles, evidence suggests that valuing and reinforcing professional and organisational identities can help to develop trust and recognition, which can, in turn, facilitate closer teamworking across organisational boundaries (King's Fund, 2016). Building effective relationships and establishing a shared commitment to developing care around an individual's needs can support this process (King's Fund, 2016). The new way of working aims to encourage a 'bottom-up approach', with a focus on the needs of the individual.

CURRENT POSITION IN OLDHAM

At the start of the blended roles programme, data showed that district nurse visits to administer insulin accounted for 169 visits per day, equating to over 42 hours a day — and this is assuming no visits required additional time due to problems encountered. Of the 169 visits, 64 were within care homes, equalling 16 hours of district nurse time daily. The South Cluster district nursing team was identified as having the highest number of visits to administer insulin in care homes across the borough and therefore was chosen as the pilot area for the programme.

Figure 1 illustrates the volume and distribution of the insulin administration requirement across care homes in Oldham at the start of the programme, and the provision required by each district nursing team daily.

DIABETES MELLITUS

Diabetes mellitus is defined as a metabolic condition associated with high blood glucose level (hyperglycaemia) caused by partial or total insulin insufficiency, which over time can lead to damage to nerves, kidneys, blood vessels, heart, and eyes (World Health Organization [WHO], 2023).

It is categorised into two main types. Type 1 diabetes is unpreventable as the body does not produce any insulin and is often diagnosed in childhood, although can be diagnosed later in life. In the UK, it is estimated that 8% of people with diabetes have type 1 (Diabetes UK, 2023). In contrast, 90% of people with diabetes have type 2. Type 2 diabetes is complex in causes including, but not limited to, lifestyle, environmental and genetic factors. Chan et al (2021) state that insufficient capacity and fragmentation of healthcare systems are barriers to people with type 2 diabetes being diagnosed, treated, or managed effectively. The risk of developing type 2 diabetes increases with age and with the UK having an increasing population of older people — by 2050 it is estimated that the population aged 85+ will be 3.1 million (Office For National Statistics, 2018) — it follows that the number of people with type 2 diabetes will also rise.

Older people with both type 1 and 2 diabetes are more likely to need admission to care home settings, which is reflected in the high prevalence of residents with diabetes in nursing and care homes in England, estimated to be 26% (Sinclair et al, 2020). Older people with diabetes are often at increased risk of disability, pressure ulcers and admission to hospital (British Geriatrics Society, 2018). Furthermore, studies have shown that care homes in the UK have a high rate of undiagnosed diabetes and this may be up to 13% (British Geriatrics Society, 2018).

Insulin is a cornerstone of treatment for type 2 diabetes, with regimens of up to four injections daily (Spellman, 2009). These need to be administered at mealtimes, mornings and evenings. However, core working hours for district nurses are between 08.00 and 17.00, which presents a logistic challenge for insulin administration within a narrow timeframe, not to mention the rising number of patients being seen on caseloads needing increasingly complex care and the decline in the workforce.

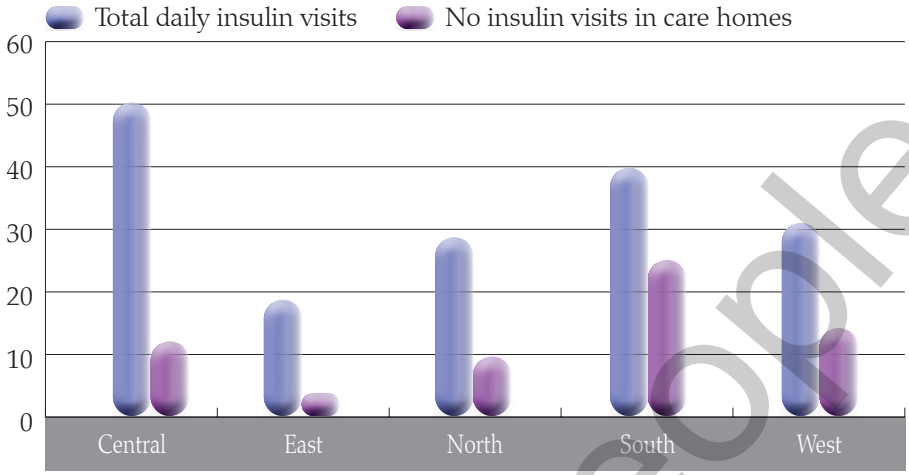

Figure 1.
Volume and distribution of insulin administration requirements across care homes in Oldham at the start of the programme and the provision required by each district nursing team daily.

PROPOSAL

Following work by community nurse fellows from NHS England and NHS Improvement around the delegation of insulin administration, originally launched in 2020 with a revised focus throughout 2022/23, the authors' trust recruited a blended roles facilitator via the Greater Manchester blended roles programme to take this forward.

Delegation of insulin administration enables appropriately trained health and social care workers to administer insulin using pens to adults in the community who have type 2 diabetes. Delegation is defined as a process in which a delegator (e.g. registered nurse/practitioner) will give authority to perform specific non-clinical or clinical treatment or care to a competent person who has been trained and adequately supported to perform the task as a delegate (Nursing and Midwifery Council [NMC], 2018). The registered nurse remains responsible for the overall management of the service user and accountable for the decision to delegate. The registered nurse is not accountable for the decision or actions of the delegate (RCN, 2023).

Where administration of insulin to suitable adults in the community is delegated, this is done in a safe and consistent manner in line with the Care Quality Commission (CQC), NMC and Health Care Professionals Council (HCPC)'s fundamental standards. Staff who are considered suitable to assume responsibilities delegated by a registered nurse/practitioner, should have proven their proficiency through a common framework of E-learning, competencies, and supervised practice.

OBJECTIVES

This initiative to delegate insulin administration aimed to achieve the following objectives.

Personalised care and empowerment

Empowering a wider range of staff to administer insulin (with the permission of the person receiving care) would help to improve continuity of care as patients would see the same member of staff who provides this service. As people will not need to wait until a registered nurse can get to where they live, they will receive injections at an appropriate time to their routine and care plan.

Support the development of healthcare and support workers

Healthcare and support workers, whether in health or social care, are

vital members of multidisciplinary teams (MDTs). They already deliver essential care and have a great deal to offer. The authors' trust wanted to formalise policies for those who have already developed their skills in the care of people with diabetes and provide a career progression pathway for those who wished to do so.

Increasing evidence favours an integrated approach to care between health and other sectors, emphasising a person-centred, preventative and community-based approach (Barraclough et al, 2021). Creating resilient integrated community healthcare systems is essential to ensure that individuals receive timely and appropriate care, ultimately reducing the strain on acute care facilities and improving overall health outcomes. If community nurses cannot get to those who need insulin injections at the right time, there is a real risk of harm. NHS England, NHS Improvement and partners are supporting the rapid roll out and training for this integrated approach to mitigate against service interruption (NHS England, 2019b).

Implement a framework for safe delegation

Delegation of this responsibility of insulin administration is not new for many areas, such as Tameside and Shopshire. The national guidance and support package seeks to ensure delegation of responsibilities around insulin administration is implemented safely and consistently around the country, with adequate structures and support for staff involved (NHS England, 2019b).

Local defined outcomes

These included supporting residential care homes and care at home providers to ensure good quality by:

- Prevention: greater emphasis on preventative measures should reduce the number of hospital admissions, improve general health, outcomes and patient experience
- Patient safety: addressing areas such as inappropriate medication administration, inefficient/flawed processes, safeguarding issues
- Staff morale/job satisfaction: having a positive impact on care staff, increasing their confidence and proficiency in caring for patients with complex needs and opening up opportunities for future career progression
- Strengths-based approach: focusing on the capacity, skills, knowledge, connections, potential, and strengths of individuals and communities.

CASELOAD REVIEW

A caseload review by the authors' trust of all patients with diabetes under the care of district nurses for administration of insulin was undertaken as part of the Greater Manchester adult social care transformation programme. The review looked at each patient's previous two haemoglobin A1C (HbA1C) results to determine their average blood sugar levels over a three-month period. Guidance suggests that this should be repeated every three to six months until HbA1c is stable, and then every six months thereafter (National Institute for Health and Care Excellence [NICE], 2022). However, in the authors' clinical experience, this is more likely to be completed on an annual basis or less.

For patients with type 2 diabetes, the target HbA1C should be 58mmol/mol or less (NICE, 2022). Where diabetes is not adequately controlled, NICE (2022) guidance for management of type 2 diabetes states that basal insulin should be considered, provided that the person is not frail.

Frailty describes how the body gradually declines and loses its in-built reserves, leaving it vulnerable to sudden health changes which can be triggered by small events, such as falls and minor illnesses (British Geriatrics Society, 2010; WHO, 2016). The risk of a person developing frailty increases in those from a low socioeconomic position (SEP), poor diet, sedentary lifestyle, polypharmacy, and comorbidities (Hoogendijk et al, 2019). Strain et al (2020) argue that older patients with diabetes who are severely frail require HbA1c targets to be adjusted. They should be placed on less tight targets with an acceptable range being between 65 and 72mmol/mol. Patients under tight control are put at increased risk of hypoglycaemic episodes, which may result in increased risk of falls and hospitalisation.

The caseload review highlighted several patients who needed review, which general practitioners were requested to do, and this is an ongoing piece of work. However, following the initial work of the caseload review, six patients reduced/stopped their insulin regimen and are now managed on oral medication. This ensures that patients' needs are met when their circumstances change alongside a reduction in district nurse contacts. Such reviews of caseloads are integral throughout the programme.

GOVERNANCE

Shore et al (2021) found that the delegation of medicine administration can be hampered where there are variations in education and governance. The delegation of insulin programme is nationally recognised and recommended by NHS England, with supporting guidance in place to support the programme (NHS England, 2019b). The programme is a voluntary framework for carers and care homes to choose to take part in. Within the guidance, it is important to recognise the sample document for policy needs to fit with local governance for the healthcare organisation undertaking the delegation programme.

Governance ensures that strategic policy frameworks exist and are combined with effective oversight and accountability (WHO, 2023). The delegation of insulin programme requires a framework that has local governance in place to include assessment of competencies, monitoring and adherence to protocol, with patient inclusion criteria (Diabetes UK, 2016). Having clear governance in place assists in strengthening working relationships and alleviates concerns relating to holistic patient care and safety.

TRAINING

Central to delegation is the development of a competent

integrated workforce. Stein (2016) states that key to this is creating a framework for learning environments where organisations can work together and engage with patients and caregivers. This needs to promote an environment of trust and respect, as well as developing an open environment for error management.

In Oldham, face-to-face awareness training is offered to all care homes as a basis of education, regardless of whether they move forward with the delegation of insulin administration. Focusing on providing basic diabetes awareness training across all care homes offers fundamental education on diabetes, which follows Care Quality Commission guidance (2016) recommendations for good diabetes care by covering:

- Type of diabetes
- Complications of diabetes
- Footcare
- Diet
- Blood glucose monitoring, including symptoms and treatment of hypoglycaemia and hyperglycaemia.

Providing basic diabetes education promotes individualised care planning and education, as well as wider public health benefits for individuals themselves and their families due to increased awareness and knowledge. The need to upskill and update registered staff on knowledge of diabetes is also recognised as being essential to provide professional development and integration between registered staff and health and social care workers. Care homes taking part in the delegation of insulin programme undertake additional, more in-depth training (*Table 1*).

RESULTS

The pilot area for blended roles has showed increased confidence in the recognition and management of diabetes, including actions for hypoglycaemia and hyperglycaemia in the care homes. Each care home has been provided with information packs and hypo boxes so that appropriate action, within competence, can be taken. The ambition is that with care staff having increased awareness, this will impact on the need for secondary care escalation, as recognising and acting on residents' early signs and symptoms means that they can be escalated appropriately. The need for frequent admission due to hypoglycaemia is known to affect older people's general health, with deterioration of both physical and cognitive function (Abdelhafiz et al, 2015). This is important in residents who are known to be frail, with an inability to 'bounce back'.

One care home in the pilot area had three residents with type 2 diabetes suitable for inclusion in the programme. Five senior carers have undertaken additional training and completed the competency framework for the delegation of insulin administration. In undertaking the training, care home staff have demonstrated the ability to rationalise why a resident's blood glucose is increased through diet and timing of oral medication, plus additional recognition that some oral medication requires blood glucose monitoring due to a risk of hypoglycaemia.

Feedback received from carers has been encouraging, and one male carer involved in the programme has now enrolled on a trainee nurse associate course.

To date, the blended roles work has demonstrated a saving in district nursing contacts and hours, as well as residents showing improved glycaemic control in the pilot area. As said, the caseload review also identified patients where diabetes management has been reviewed and insulin stopped or adjusted accordingly. Insulin administration has been timed on individual patient needs and mealtimes offering a greater person-centred experience.

Table 2 demonstrates a predicted 26.25 hours saved of district nursing time by a reduction of 105 weekly contacts from the first home of the programme.

CONCLUSION

To ensure integrated person-centred care in an ageing population and increasing demands on community services, it is essential to explore new ways of working and role recognition. Providing education and a structured framework for health and social care workers promotes a culture based on respect and trust with improved communication. The delegation of insulin administration programme has offered the opportunity to ensure robust, up-to-date evidence and supporting guidance is in place to support care staff to undertake this new role safely. Utilising knowledge and skills within the training system to meet the needs of vulnerable individuals by a collaborative approach to person-centred care brings about improved outcomes. Care staff know their residents better than district nurses, they are with them 24 hours a day, and by exposing them to new ways of working means that they can further support and meet the needs of the residents, which has proved beneficial to all involved.

The delegation of insulin has provided favourable evidence that improving timing of insulin with a resident's chosen mealtimes enhances glycaemic control and

Table 1: Training provided to care homes taking part in the delegation of insulin administration programme

Face-to-face	E-learning	Competencies
▸ What diabetes is and how insulin works	▸ Diabetes care — learning the basics	▸ Observation of administration of insulin
▸ Types of insulin	▸ Glucose monitoring and the safe use of non-insulin	▸ Minimum of five observed blood glucose monitoring and administration of insulin
▸ How to safely prepare and administer insulin	▸ Safe use and administration of insulin	
▸ Apply knowledge of administering insulin by practising using demo pens		

promotes individualised care for residents. In addition, the reduction of community nurse visits means that district nurses can focus on patients who require more complex care.

Further roll out is anticipated across other care homes in the borough to fully maximise the benefits realised in this pilot. JCN

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Table 2: Summary of district nurse (DN) hours saved

Situation	Number of patients	Weekly district nurse hours saved	Reduction in district nurse contacts
Patients insulin stopped	Four	12.25 hours	Reduction of 49 weekly district nurse contacts
Patients insulin stopped	Three	3.5 hours	Reduction of 14 weekly district nurse contacts
Total	Seven	15.75 hours	Total reduction to date of 63 weekly district nurse contacts
Patients where insulin administration is delegated	Three currently under blended roles facilitators, awaiting policy sign off	DN hours will be saved in addition to above	Predicted reduction of 42 weekly DN contacts in addition to above

Managing urinary catheter blockage and leakage

Linda Nazarko

Over 124,000 people in the UK have long-term indwelling catheters (Gage et, al, 2017; Nazarko, 2017). Indwelling urinary catheters increase the risks of infection and ill health (Feneley et al, 2015; Public Health England [PHE], 2016). They can leak, block and management can be burdensome for the person with the catheter, caregivers and health service (Cottenden et al, 2013). This article updates readers on how to reduce the risks of infection, leakage and catheter blockage, and how to manage these problems when they occur.

KEYWORDS:
■ Indwelling catheters ■ Infection ■ Leakage ■ Blockage
■ Bladder washouts ■ Bladder maintenance solutions

Although indwelling urinary catheters lead to more infections than any other medical device, there is little information about the number of people in the UK with long-term indwelling catheters (Public Health England [PHE], 2016). It is thought that over 124,000 people in the UK, 90,000 people living in their own homes, and an estimated 34,500 people living in UK care homes, have long-term indwelling catheters (Gage et al, 2017; Nazarko, 2017).

Indwelling urinary catheters contribute to the development of antimicrobial-resistant bacteria. They increase the risks of bacterial colonisation, recurrent and chronic infections, and septicaemia. They can also cause damage to kidneys, the bladder and urethra, and lead to the development of bladder stones (Feneley et al, 2015).

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'Indwelling urinary catheters contribute to the development of antimicrobial-resistant bacteria. They increase the risks of bacterial colonisation, recurrent and chronic infections, and septicaemia.'

Recent research collected retrospective data from 2009 to 2010 from GP records of 607 people who had indwelling catheters for three months or more — 333 patients and 303 district nurse questionnaires (Gage et al, 2024). The researchers sought to identify the characteristics of long-term catheter users, reasons for catheterisation, and catheter-related service use in the community. Gage et al (2024) found that in a year:

- 63% of patients required GP input
- 43% contacted out of hours services
- 33% required additional community nurse support
- 15% attended accident and emergency
- 13.6% were admitted because of problems related to their catheter.

Figure 1 illustrates healthcare utilisation of people with long-term indwelling catheters. The average annual healthcare cost of an indwelling urinary catheter was £1391 at 2011 prices. Some people, about 10%, have more problems with their catheters, are more likely to use out of hours services, attend accident and emergency, and be admitted to hospital. It costs 20 times as much, around £7,000 a year, to provide catheter care for these individuals (Gage et al, 2024).

UNDERSTANDING CATHETER-RELATED PROBLEMS

Many people, between 50–70%, who have long-term catheters experience problems with their catheters. Commonly reported problems include bladder pain, catheter leakage, blockage and urinary tract infection (UTI) (Khan et al, 2007; Youssef et al, 2023).

Bladder spasms affect around 50% of people who have long-term catheters and can be painful and distressing (Yates, 2018). They develop because of powerful, often painful contractions of the detrusor muscle. The contractions are thought to be triggered by the presence of a foreign body, the catheter, in the bladder. Bladder spasms have been described by people who have experienced them as similar to dysmenorrhoea (Nazarko, 2014). They can cause leakage of urine and in some cases the catheter, with balloon intact, can be expelled (Jang et al, 2020). In the author's clinical experience, when a catheter leaks, the nurse may think that the catheter is too small to manage the flow of urine and insert a larger one when changing. If bladder spasms occur and an indwelling urinary catheter is necessary, it is best to use a smaller catheter, as larger catheters increase the risk of bladder spasms (Binhas et al, 2011).

Blockage can arise as a result of catheter encrustation or clots or debris. Around 50% of people who have long-term catheters develop encrustation (Stickler and Feneley, 2010). These individuals are often informally referred to as 'blockers', the remainder of people who have long-term indwelling catheters tend not to block and are known as 'non-blockers'. *Patient story one* illustrates a person who is not at risk of encrustation.

Encrustation is the term given to the blockage of the lumen or the drainage holes of the catheter caused by a crystalline bacterial biofilm (Stickler and Feneley, 2010). When urine of a person with a long-term catheter becomes colonised with bacteria that produce the enzyme urease, this splits the urea in urine and leads to the release of ammonia (*Figure 2*).

Urease producing bacteria include *Proteus, Staphylococcus, Klebsiella, Providentia, Pseudomonas, Ureaplasma urealyticum*, and some anaerobes (Halinski et al, 2022). *Proteus mirabilis* is a gram-negative bacteria that is a frequent cause of catheter-associated UTIs (Wasfi et al, 2020). These bacteria are rod shaped, anaerobic and do not require the presence of oxygen. They thrive in the human intestine, animal intestines, manure, soil and polluted water.

In the author's clinical experience, there are three ways in which healthcare professionals can identify colonisation or infection with urease producing bacteria, namely:

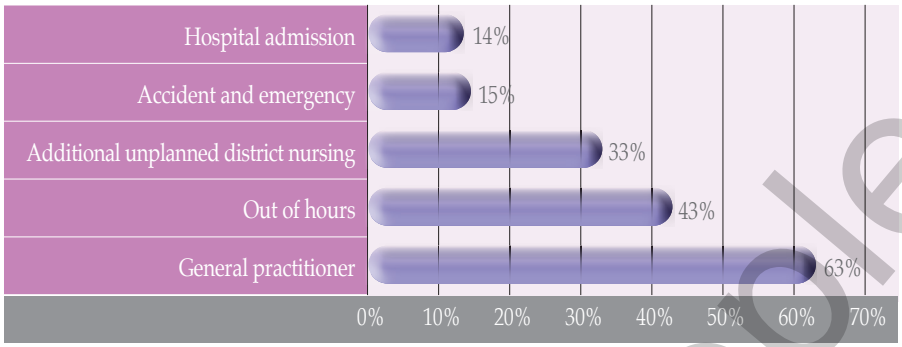

Figure 1.
Healthcare utilisation due to indwelling urinary catheterisation (author's own work based on Gage et al, 2024).

- Urine will smell strongly of ammonia
- On testing, urine is very alkaline — a pH of 9 is not uncommon
- By inspecting and examining the catheter when removed. Roll the tube between the forefinger and thumb of gloved hand. Grittiness like grains of sand within the tube will be felt. Inspect the drainage holes at the tip of the catheter and the balloon, which may be found to be completely or partially blocked. The balloon may have a cream-coloured hard coating. If the catheter is cut lengthwise, encrustation can be seen, which may be like a hard coating or small grains of sand (Yates, 2018).

As said, indwelling urinary catheters increase the risk of UTI. Normally, the urinary tract is protected from infection by urine acidity and the flushing action that occurs when the bladder empties. A urinary catheter provides a portal of entry and bacteria can thrive on the drainage bag and within the catheter (PHE, 2017). The presence of a urinary catheter also enables bacteria to form biofilm. This slimy sticky layer protects bacteria from the body's immune response and antimicrobial therapy (Pelling et al, 2019; Vestby et al, 2020).

PRINCIPLES OF PROACTIVE CATHETER CARE

Current hospital infection control guidelines recommend assessing the need for catheterisation, selecting the catheter type, aseptic catheter insertion and catheter maintenance, and educating staff and patients (Loveday et al, 2014; *Figure 3*).

ASSESSING THE NEED FOR CATHETERISATION

The National Institute for Health and Care Excellence (NICE, 2014) recommends that a person's clinical need for catheterisation should be reviewed regularly and the urinary catheter removed as soon as possible. The need for catheterisation, as well as details about insertion, changes and care should be documented using a catheter passport and also recorded in the electronic patient record.

Most people acquire their indwelling urinary catheters in hospital. Some are placed routinely, for example prior to surgery such as a hip replacement. However, documentation of the clinical indications for catheterisation is sometimes absent (Rasanathan and Wang, 2020). Around 30–50% of urinary catheters are inserted without a robust clinical indication (Shackley et al, 2017; Almeida et al, 2020). Indeed, certain groups of

Patient story one

Anna Casey, an 86-year-old lady who was known to have chronic urinary retention, was admitted to hospital following a fall and fracture. Her urinary catheter appeared faded and old. Mrs Casey, who had some problems with her memory, could not recall when it was last changed. The nurse in charge asked her daughter, Claire. Claire said, 'Well mum moved down from Yorkshire to live with me just before Christmas. I didn't realise that these catheters needed changing'. It was August, so Mrs Casey's catheter had been in place without any problems for at least eight months. Staff changed the catheter.

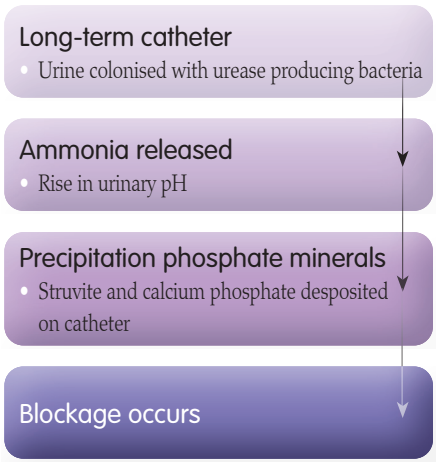

Figure 2.
How encrustation develops (author's own work).

people such as older people are more likely to be catheterised when this is not clinically indicated (Almeida et al, 2020). Although some areas have introduced catheter passports, these are not always used (see *Resource box*), which can make it difficult to determine why the catheter was inserted and if it is still required (see *patient story two*).

Table 1 indicates the appropriate indications for indwelling urinary catheterisation using the HOUDINI acronym (Adams et al, 2012).

CATHETER SELECTION

The Charrière scale is used to measure catheter size by grading the outer circumference of the catheter. The bigger the size of the catheter, the more the urethra is dilated. It is important to select the smallest possible catheter to minimise urethral dilation, a size 12 or 14 French Gage (FG) is normally suitable. Using the smallest possible catheter reduces the risks of trauma, bladder spasms and leakage (Reid et al, 2021). However, large catheters may be required if there is a lot of debris in the urine.

Most catheters used in community settings are long-term catheters and remain in place for 12 weeks. These are silicone or hydrogel coated latex (Reid et al, 2021). A Cochrane review was only able to identify three small trials of different catheters and concluded that it was not possible to recommend any particular type of catheter material (Jahn et al, 2012), and so further research is required. The authors commented that there was some limited evidence that hydrogel coated latex catheters were better tolerated in men (Jahn et al, 2012). In the author's experience, silicone catheters are less likely to block and become encrusted. However, they can leak because water can diffuse out of the balloon.

PLANNED CATHETER CARE

Long-term catheters should be changed at least every 12 weeks, although some catheters can block before this. Proactive catheter care can help identity the life span of a particular type of catheter used by a person. If, for example, the individual's catheter tends to become encrusted and blocked 10 weeks after insertion, it may be changed a few days before 10 weeks. This planned care aims to avoid leakage and the need for unplanned care that can affect quality of life.

Diagnosis is key to treating catheter leakage and blockage. There are a number of reasons why a catheter can block or leak — defined as intraluminal and extraluminal. Intraluminal blockages are blockages to the lumen of the catheter caused by debris, clots or encrustation. Extraluminal blockages are problems that affect the drainage system. *Table 2* outlines extraluminal blockages and how these are managed.

Practice point

Around 30–50% of indwelling urinary catheters are not clinically indicated. If possible, remove the catheter. You may be able to carry out a trial without catheter (TWOC) in the community or refer to a TWOC clinic.

Treating intraluminal blockages

If the catheter is completely blocked, it should be removed and replaced. Healthcare professionals should check the catheter to determine the cause of blockage. Catheter patency solutions, also known as catheter maintenance solutions and bladder washouts, can be used in certain circumstances to prolong the life of catheters that block. However, they should not be used to unblock catheters (Yates, 2018).

Evidence on the effectiveness of catheter patency solutions is extremely limited. A Cochrane review compared data from seven trials (Shepherd et al, 2017). The reviewers found that there was insufficient evidence to determine if washouts

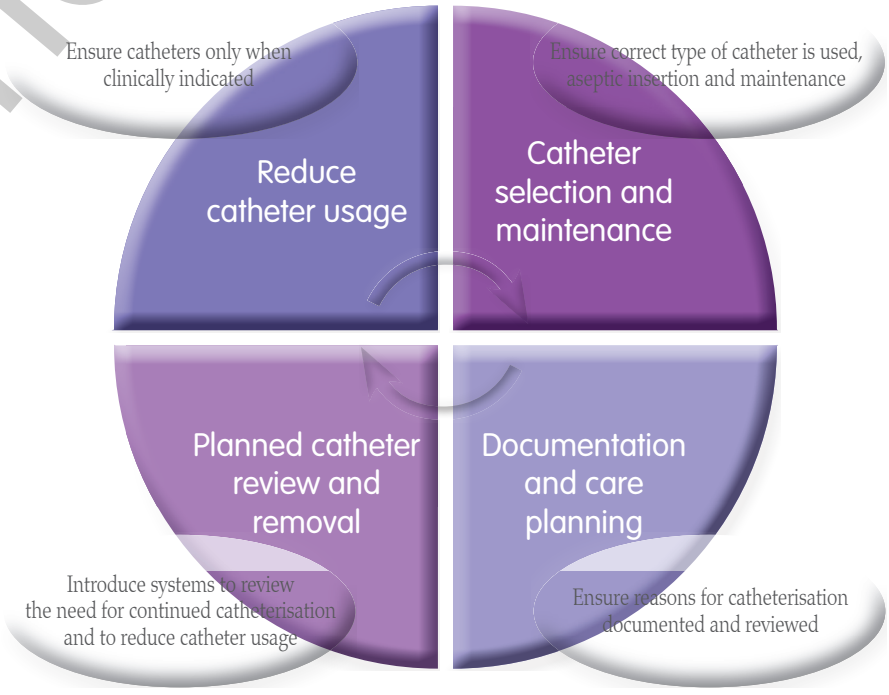

Figure 3.
Principles of proactive catheter care (author's own work).

Table 1: Indications for urinary catheterisation

H	Haematuria
O	Obstructed
U	Urologic surgery
D	Decubitus ulcers — open sacral or perineal pressure ulcer in an incontinent person
I	Input/output monitoring
N	Not for resusitation/end-of-life care — comfort
I	Immobility due to physical restraints

were beneficial or harmful. Flushing and irrigation greatly increase the risk of infection, as they breach the closed drainage system (Royal College of Nursing [RCN], 2021). There are also concerns and reports that flushing and irrigation can lead to bleeding, hypotension, bladder spasms and damage to the bladder mucosa (Shepherd et al, 2017).

Catheter maintenance solutions

There are four types of catheter maintenance solution:

- Normal saline — mechanical removal of small clots, debris, tissue, etc. Not effective for encrustation. Use as required
- Citric acid 3.23% — dissolves crystals formed by urease producing bacteria. Contains magnesium oxide to protect the bladder. Use once weekly, up to a maximum of twice daily (depending on severity of symptoms). Instil for five to 10 minutes in the bladder
- Citric acid 6% — stronger solution, effective in severe encrustation and dissolves persistent crystallisation in the bladder or catheter. Can also be used before catheter removal to prevent trauma. Use once a week, up to a maximum of twice a day (depending on severity of symptoms). Instil for five to 10 minutes in the bladder (five to 10 minutes before removal of a catheter)
- Polihexanide 0.02% — this is an improved, second generation chlorhexidine. It is a broad-spectrum biocide not only effective against bacteria, but also against certain fungal and protozoal pathogens (Pannek et al, 2020). It is thought to prevent bacteria adhering to the catheter and inhibits the formation of biofilm and the development of catheter encrustation (Pannek et al, 2020). Contraindications include hypersensitivity to polihexanide or chlorhexidine, presence of cystitis or haematuria, and use after surgery of the bladder or urinary tract (Yates, 2018).

All bladder maintenance solutions require a prescription. It is important that the prescriber discusses the effectiveness of the treatment with healthcare professionals who are administering and documents that the need for use has been reviewed. Prescribers should abide by local prescribing guidance, in most areas polihexanide washouts are only given if prescribed by a urologist.

Assessment and documentation

The RCN caution that regular use of bladder irrigation, instillation and washouts increases the risks of infection, sepsis and even death. It advises:

> *When considering the use of washouts/maintenance solutions, there must be evidence of an individualised assessment and the clinical indication for use must be recorded.*
>
> (RCN, 2021: 60)

The RCN recommends that this assessment considers if other less risk options have been considered. There should be a clear rationale for use and frequency of administration should be documented. Effectiveness of the intervention should be recorded and the care plan reviewed regularly (RCN, 2021).

Practice point

The best way to avoid complications of urinary catheters is to avoid their inappropriate use and to promptly remove them if they are no longer clinically indicated (Zhao et al, 2022).

DISCUSSION

Indwelling urinary catheters can be routinely inserted in hospital without proper appreciation of how they might impact on a person's life. The catheter may cause pain and discomfort (Saint et al, 2008). Pain can increase anxiety and make a person fearful of moving around. People who have indwelling urinary catheters are less mobile than those without catheters (Saint et al, 2002), and impaired mobility can have a major impact on an older person's life. Around 30% of older people admitted to hospitals decline functionally. One study of older people admitted from home found that six months after discharge 43% required assistance with medications,

Patient story two

Mrs Rahila Khan is a 76-year-old lady. She has a number of medical problems, including type two diabetes and dementia. Mrs Khan normally lives in a care home. She became unwell, developed a cough and declined food and fluids. Mrs Khan was admitted to hospital and treated for pneumonia. She had intravenous (IV) fluids during her admission. On return to the care home, she had an indwelling urinary catheter. There was no mention of the catheter on the hospital discharge summary. Mrs Khan was not issued with a catheter passport, and having moderate dementia did not know why she had been catheterised. Her family were also unaware and staff on the busy hospital ward were unable to help. The catheter began to leak and Mrs Khan appeared uncomfortable.

A community nurse assigned to the care home carried out a trial without catheter (TWOC) in the care home. Mrs Khan was able to pass urine and appeared to be comfortable.

Table 2: Causes and management of extraluminal blockages

Problem	Action
Bladder spasms	Check if catheter can be removed. Consider if intermittent catheterisation can be used if catheter required. Ensure smallest possible catheter used. Consider use of anti-cholinergic medication, this should be used with caution as can cause daytime drowsiness, cognitive decline, increase the risk of falls and lead to increased mortality (Taylor-Rowan et al, 2022; Bishara, 2023)
Constipation or faecal loading causing pressure on the catheter lumen and blocking drainage	Investigate and treat constipation, improve dietary fibre and fluid intake. Treat predisposing factors
Poorly supported drainage system can impede flow of urine	Ensure that drainage systems are correctly supported using appropriate support devices
Kinks in bag or tubing In leg bags, the drainage strap may be incorrectly applied impeding flow of urine One strap may be used instead of two and the bag can flip over on itself impeding flow of urine	Correct problems. Educate patient and caregivers
Failure of non-return valve in drainage bag	Change drainage bag
Overfull drainage bag	Ensure that bags are emptied when 2/3 full to avoid pelvic trauma and leakage
Bag too low. Negative pressure can cause bladder muscosa to be sucked into the eyelets of the catheter	Raise drainage bag above the level of the bladder. This normalises the pressure and allows the mucosa to free itself from the catheter eyelets
Bag not below bladder	Ensure drainage bag is lower than the bladder. Urine does not drain uphill

24% were still unable to walk a quarter of a mile, and 45% were still unable to drive (Chen, 2022).

Nursing and medical staff should be educated to think holistically and understand the potential detrimental impact of what they consider to be a simple procedure, such as urinary catheterisation. More resources are also needed so that the person with a catheter can have speedy access to TWOC services. JCN

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Revalidation Alert

Having read this article, reflect on:

- Your knowledge of catheter-related problems
- The importance of keeping a catheter passport
- When and why you should carry out a TWOC.

Then, upload the article to the free JCN revalidation e-portfolio as evidence of your continued learning: www.jcn.co.uk/revalidation

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KEY POINTS

- Over 124,000 people living in community settings have indwelling urinary catheters, in 30–50% of cases they have been inserted without a robust clinical indication.
- The National Institute for Health and Care Excellence (NICE, 2014) recommends that a person's clinical need for catheterisation should be reviewed regularly and the urinary catheter removed as soon as possible.
- Around 50–70% of people with long-term catheters experience complications, including pain and blockage.
- Evidence is lacking regarding the most suitable catheter material to reduce the risks of blockage.
- Diagnosis of the causes of blockage is key to prevention and treatment of blockage.
- Catheter maintenance solutions aim to prevent catheter encrustation and prolong the life of the catheter. More research is required into their effectiveness.
- Nursing and medical staff should be educated to think holistically and understand the potential detrimental impact of what they consider to be a simple procedure, such as urinary catheterisation.

Travelling with a stoma: advice for patients

Jennie Burch

Community nurses are well placed to provide information about travel to people living with a stoma. Although much of the advice seems like common sense, learning to live with a stoma and adapt the stoma into lifestyles can be difficult. Patients often want advice and reassurance that they can travel — be this on foot, by car, boat or aeroplane. There is a great deal of information on the internet from support groups, which is often reviewed by healthcare professionals and people living with a stoma to ensure accuracy. There is also information available from stoma appliance manufacturers and dispensers on their websites. Healthcare professionals need to advocate caution in using other sites that may be the opinion of just one person and may not offer a balanced view. However, in general, community nurses can encourage travelling as a safe and enjoyable way to live after stoma forming surgery.

KEYWORDS:
■ Stoma ■ Travel ■ Planning ■ Challenges ■ Signposting

Learning to adapt to life with a stoma can take time. One way in which community nurses can help build confidence is by providing knowledge and signposting to enable people to go travelling. It is a myth that people with a stoma cannot travel, so community nurses need to provide useful facts to enable people living with a stoma to enjoy things that they used to before their stoma forming surgery, such as going on holiday.

STOMAS

There are three main types of stoma, and they are all surgically formed for reasons such as colorectal cancer or inflammatory bowel disease. A colostomy and ileostomy will pass faeces and flatus, while a urostomy will pass urine. To collect and contain the output from a stoma requires the placement of an adhesive stoma appliance around the stoma on the abdominal wall (Burch and Black, 2017).

Jennie Burch, head of gastrointestinal education, St Mark's Hospital

'It is a myth that people with a stoma cannot travel, so community nurses need to provide useful facts to enable people living with a stoma to enjoy things that they used to before their stoma forming surgery.'

PLANNING TRAVEL

Having a stoma does not preclude travel, but planning travel does require consideration. This is where community nurses can be invaluable in advising patients in their plans. There is limited evidence to support travel advice when living with a stoma, so often common sense is needed. Alternatively, information has been passed between patients and nurses, with both learning from the other. The mode of travel needs to be taken into account as does what activities are undertaken, as well as eating and drinking when away. In the author's clinical opinion, it can also be advisable to gradually increase the time spent travelling and the distance from home to gain confidence that it is possible to travel.

On foot

When walking, it can be useful for people living with a stoma to think about what they might need. Walking is an activity that is safe to do immediately after the stoma forming surgery (Gustafsson et al, 2019). Healthcare professionals can encourage people with a stoma to gradually increase the duration and distance walked each week, as strength and confidence increases.

It can be useful to know toilet locations when out shopping to gain confidence that appliances can be emptied or changed if needed. However, it is unlikely that this will be necessary for short walks. It needs to be remembered that toileting facilities might not be available if out rambling in the countryside, for example. However, it can increase confidence to have a spare appliance and all the necessary equipment to undertake a change should it be necessary.

In the author's experience, it is helpful to provide individuals with specific information for different stoma types when they are planning to travel on foot. For people with a urostomy who are travelling a long way and without access to a toilet, it can be useful to use a leg bag so that they have added storage capacity for urine collection. People with an ileostomy who are travelling for a considerable time without toilet access, could take medication to thicken the faeces, which will also reduce volume of output. Caution must be exercised to ensure that use of medications, such as loperamide, do not cause problems. It is sensible to advise patients about effects and side-effects when starting a new medication, such as loperamide is

useful to slow down the gut, but some people are more sensitive to loperamide than others, and to ensure that the faecal output from the ileostomy is not slowed too much that nothing comes out. For people with a colostomy, faecal output is less frequent than for people with an ileostomy and travel on foot will infrequently require any need to have concerns about the colostomy appliance.

By road

When travelling by road, there are usually many potential toilets on motorways and major roads. Coach trips often have an onboard toilet which can reduce the stress of finding a toilet. To remove the odour of faeces when emptying an appliance, a small air freshener can be used before the emptying process. Otherwise, the advice is the same as for travelling long distances on foot.

By plane

Travel by air can involve hours in an airport as well as time on the aeroplane. Air pressure changes can result in the stoma appliance ballooning with gas (Colostomy UK, 2024). This is particularly so for people with a colostomy but can also occur for people with an ileostomy. Gas can also occur with carbonated drinks and foods, such as beans. These therefore should be avoided before and during flights to reduce their effects when in the aeroplane. Although it is not necessary, some people prefer to request a seat by the toilet when travelling by air.

It is also advised to take all stoma supplies in the hand luggage in case of issues with suitcases being lost. The airline might allow additional hand luggage if a request is made to allow for storage of medical devices such as stoma appliances. However, scissors are not allowed on aeroplanes and thus the aperture in the appliance needs to be pre-cut in advance; although many people no longer cut their own appliance once the initial period of adaptation occurs.

It is also sensible to take twice as many appliances as is usual for the duration of the holiday or trip abroad, as things can be different in different climates. Hot weather can increase sweating, which can reduce the adhesion of the stoma appliance, meaning that it may require changing more often than would be usual at home. Being in the swimming pool may also mean that the stoma appliance needs to be changed more often than usual or to increase confidence. Confidence is necessary to ensure that there is no risk of a leaking appliance in the pool which may be obvious to other swimmers and result in pool closures while the pool is cleaned. When planning to go swimming, it is sensible to check that the appliance is secure and if it is a drainable appliance, such as an ileostomy or urostomy, it is emptied before going into the swimming pool.

By train

Train travel will usually involve trains with toilets, both in the station and on the train. Easy access to toileting facilities can reduce concerns about train travel.

By water

Travel by ferry or ship may involve eating foods and drinks that are different to normal, which may affect the function of the stoma. On cruises there are always medical staff available in case of passengers falling ill. However, it is important to bring more stoma equipment than would normally be used in case of needing to change the appliance more often than usual. As mentioned before, more frequent changes may be necessary if the climate is hotter than usual and more sweating is occurring, or in the case of swimming for example.

TRAVEL CERTIFICATE

When travelling abroad it is advised that all UK citizens gain a UK global health insurance card (UK GHIC), which is free to obtain via the NHS website. The UK GHIC enables people to have health care in the European Union or other stipulated countries (NHS, 2023). Health care may be free or the same payment as a local resident would pay for emergency treatment and can include pre-existing medical conditions. However, the UK GHIC does not cover all situations, such as being medically repatriated. Thus, it is essential to also have additional travel and medical insurance.

Table 1: Stoma support groups

Stoma support group	Website
Colostomy UK	www.colostomyuk.org
Ileostomy and internal pouch association	www.iasupport.org
Urostomy Association	www.urostomyassociation.org.uk

HOLIDAY INSURANCE

It is possible that having a stoma will increase the cost of holiday insurance compared to before stoma forming surgery. To keep costs down, it can be useful to compare several insurance company quotations. There are insurance companies that specialise in people with pre-existing medical conditions. The three main support groups (*Table 1*) for people living with a stoma might be able to offer information gained from members about holiday advice. Additionally, most stoma appliance manufacturers will have information on their website about travel advice which can be useful to read. Community nurses can suggest that their patients look up websites designed by their appliance manufacturer, details of which will be on their stoma products. Alternatively, if the patient uses a delivery or dispensing company, this is also likely to have information on their website for patients to view.

EATING AWAY FROM HOME

When eating and drinking foods that are different to the norm, this can affect the output from the stoma (Young, 2016). Water can taste different and contain varying minerals in different places. It can be advisable for people with a stoma to drink bottled water when abroad. In addition, foods can be cooked differently when eating out. Fried foods, for example, can result in loose faeces. Healthcare professionals can provide dietary advice as well as information about the use of medication.

For people with an ileostomy, it can be advantageous to take loperamide and to use it as needed to

Practice point

While travelling with a stoma appliance, whether it is a colostomy, ileostomy or urostomy, can be challenging, with careful planning and preparation it is manageable.

thicken faecal output. It is essential for healthcare professionals to advise about signs to look out for if the loperamide stops the faecal output, i.e. no faeces coming into the stoma appliance when they usually would, and that no further medication should be taken until the bowels have regained normal function. Subsequently, loperamide should be used with caution (NHS, 2024).

Although being abroad will not affect the skin around the stoma (peristomal) *per se*, there is potential for skin damage to occur. This might happen if the appliance is changed more than usual due to sweating, for example. If an appliance is changed more frequently than usual, it is possible that the top layer of skin (epidermis) will be removed faster than usual, termed skin stripping. The epidermis contains no blood supply or pain receptors, so superficial damage might not be immediately obvious. To minimise skin stripping, patients should be advised to gently remove appliances and ensure that they carefully clean and dry the peristomal skin if they need to replace the appliance more than is usual for them.

Colostomy UK have devised a travel certificate which is free to download and endorsed by the civil aviation authority. Also, you can advise patients that many appliance manufacturers will provide them with a travel card in multiple languages which can be useful for travel.

TRAVEL CHALLENGES

There is limited evidence related to people living with a stoma and travel. All studies reported here were cross-sectional, looking only at a snapshot in time and most used questionnaires to gain results from large numbers of people living with a stoma. Some of the available research will be critiqued to help show how, or if having a stoma will affect travel. Although none of the studies were completed in the UK, it is likely that results would be similar if they were looking at people living in the UK with a stoma.

Krouse et al (2009) in America reported on 246 people with a stoma, comparing them with 245 people who did not have a stoma. Both groups had previously had a colorectal cancer. To evaluate their life with a stoma, they were asked to complete several questionnaires. People living with a permanent stoma reported more challenges when travelling than people without one. However, both groups did not report that there were no challenges related to travel. These results suggest that adaptations are needed to be made to enable travel with a stoma.

Dabirian et al (2010) in Iran interviewed 14 people living with a colostomy in relation to their quality of life. Of the 14 people interviewed, only one mentioned travel. In describing travel with a stoma, they were positive and explained how they knew what to do to manage their colostomy on long journeys. The participant stated:

I travelled twice after having my colostomy for a long time, more than 20 hours. I know how to clean it before travelling and how to care for it during the trip.

The results from this study suggest that once people know how to manage their stoma when travelling it does not hinder travel.

Results from almost 700 questionnaires conducted with people living with a stoma for any reason in the Netherlands were collated and the types of concerns were ranked (Jansen et al, 2015). Travelling or being away from home was ranked in the top 10 list of concerns reported in this study group. This suggests that it is a concern to people living with a stoma to consider travelling. This highlights the need for community nurses to be able to support and advise people so that they feel confident to travel and leave their homes.

In a systematic review undertaken to examine how a colostomy affected quality of life for people after colorectal cancer, Vonk-Klaassen et al (2016) described the results of 14 studies. The studies described within this review used a variety of different questionnaires to determine quality of life. The authors said that having a colostomy negatively affected quality of life and this included travel difficulties. The results of this study suggest that quality of life might be improved if concerns about difficulties when travelling could be reduced.

In Norway, surveys were used to gain the opinions of over 150 people living with any type of stoma (Indrebø et al, 2016). The authors describe that people who negatively reported on the question about 'being free to travel where I want despite my ostomy', were more likely to have a poorer quality of life than people who were positive about travel with a stoma. This further supports the assumption that if people with a stoma feel confident about travel, they are likely to have a better quality of life.

In Indonesia, interviews to explore opinions of 11 people living with a stoma after colorectal cancer showed positivity (Afiyanti et al, 2023). The interview participants reported that although they needed to make adjustments related to their stoma when they travelled, they were positive about the adjustments that were needed. One participant describes preparation for travel: 'And if I want to travel, I always prepare him so he won't make noise... (laughing)...for example, by not eating cabbage'. This also supports the assumption that confidence improves quality of life and that nurses are invaluable in providing support and guidance on travel. Confidence and ability to travel was not true of all participants, with one describing less ability to travel than before the stoma formation: 'Now I can't go out of town… I used to travel a lot outside the Java island. But now that I have a stoma, I have to accept and adapt to it. My health is my top priority now'. While these interviews were not undertaken in the UK, people in the UK are also at risk of concerns about leaving their homes

or local environments. This indicates a potential role for community nurses to try and increase understanding about what is possible with a stoma.

In Nigeria, Muhammad et al (2022) interviewed 15 people with a stoma to determine their lived experiences and coping strategies. Most (12 participants) reported making some change to their travel arrangements. This included changes to how they ate in the preparation for travel: 'When I have to travel, I do not eat, I only take little snacks and I eat foods like rice because they make the faeces hard'. This insight shows that modifying diet can help to alter the consistency of faeces, which can make travel simpler.

In the author's clinical opinion, this research is likely to be representative of some of the people living in the UK with a stoma. If people living with a stoma want further information after discussions with their community nurse, it can be useful to advise them to contact their stoma specialist nurse. Alternatively, contact or look at the websites provided by stoma support groups for more advice (*Table 1*).

CONCLUSION

It is possible for people with a stoma to travel. Walking is encouraged in the immediate postoperative period. Other travel often requires a greater degree of recovery and a gradual increase in distance from home being travelled to boost confidence. Community nurses can facilitate this by providing advice and signposting to useful websites for additional advice, most of which is anecdotal.

Photograph: Darren Baker/Shutterstock

Revalidation Alert

Having read this article, reflect on:

- Why patients with a stoma might be reluctant to travel
- The advice you give patients with a stoma who want to travel
- The challenges that might arise when on holiday
- Dietary advice you might offer patients when travelling with a stoma.

Then, upload the article to the free JCN revalidation e-portfolio as evidence of your continued learning. www.jcn.co.uk/revalidation

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Q&A approach to lower limb and leg ulcer management

Here, Georgina Ritchie, director of education, Accelerate CIC, explains why she and colleagues decided to write a book on lower limb and leg ulcer management using a Q&A approach in order to tease out and explore the most relevant themes in this area of practice. The individual authors for each chapter are all experts in their field, ensuring comprehensive coverage of the topics. This article gives an overview of each chapter and offers JCN readers a special 30% discount code to buy a copy.

When drafting this article, and during many stages during the writing process, the team and I questioned ourselves, why write a book on lower limb and leg ulcer management when there are so many great articles out there? Well, the answers from our unique team of chapter authors and editors vary, but all have one key theme in mind, that is creating change for patients who have lower limb conditions and leg ulceration and challenging the perception that leg ulcers are invariably a chronic condition and cannot be healed.

We wrote this book because many of us have been that nurse sat in a car outside a patient's house, or working alone in a treatment room or in general practice setting, asking ourselves why is this ulcer not healing? What can I do to create healing? Many of us have reflected on the times when we did not know what to do and compression was not optimised. We also have a wealth of unique experiences within our team which we know can make a difference to lower limb and leg ulceration management, which we wanted to share.

This book brings discussion on the importance of biomechanics and gait (BMG) and the adversarial relationship between BMG, ulceration and swelling. The book also takes a unique approach to pain in leg ulceration, challenging perceptions that analgesia can fix all pain. Finally, along with the important chapters on clinical assessment and management, we bring critique and synthesis to public health and the social determinants of health and how they affect patients with lower limb conditions.

We are incredibly proud of this book, and hope that you will enjoy this Q&A which is framed by the chapters of the book.

Team book launch.

Q 1: Why are early interventions in patients with chronic venous insufficiency so important?

Aby Mitchell, senior lecturer, King's College London

The prevalence of venous leg ulcers (VLUs) in adults over 18 years has been steadily rising to one per 100 individuals in 2017/2018 (Guest et al, 2020). Treating a VLU comes at a significant cost, with an estimated expenditure of £166.39 per person (Urwin et al, 2022). Given these statistics, early intervention for patients with chronic venous insufficiency (CVI) is imperative to prevent disease progression resulting in tissue changes and deteriorating skin integrity. Early interventions serve to:

- Alleviate symptoms, such as leg pain and swelling
- Preserve venous function
- Reduce healthcare costs.

Interventions aimed at early management of CVI include a spectrum of approaches, including recommendations for lifestyle changes such as weight loss, increased physical activity, promoting good skin care and hygiene, and compression therapy. By

addressing CVI at its onset, healthcare practitioners can not only enhance patient well-being, but also reduce the economic burden associated with advanced stages of CVI.

Early interventions underpin the principles of proactive healthcare management using holistic approaches to optimise patient outcomes in the long term.

Q 2: Is lymphoedema common in patients with lower limb issues?

Caitriona O'Neil, director of clinical services and Rhodri Harris, lymphoedema specialist nurse, both at Accelerate CIC

Lymphoedema affects one per 1,000 of the population (All Ireland Guidelines, 2022). While lymphoedema can be noted in any part of the body, a lower limb presentation is most common, either unilaterally or bilaterally. Prevalence increases with key risk factors, such as those outlined below, and many of these can be linked directly to lower limb issues. Risk factors include (National Lymphoedema Partnership, 2019):

- Cancer
- Increased age
- Impaired mobility
- Obesity
- Trauma
- Heart failure
- Neurological defect
- Venous disease.

It is a common misconception that lymphoedema/chronic oedema is not seen by community nurses or those working in general practice, yet the presence of people with lymphoedema/chronic oedema is very common on community nursing caseloads. This cohort of people require compression therapy to prevent serious conditions, such as lymphorrhoea (wet legs), ulceration and cellulitis.

Q 3: Why is knowledge about unusual aetiologies important for nurses working in the lower limb setting?

Kirsten Mahoney, senior tissue viability nurse and clinical operational programme improvement lead and Sarah Bradbury, director of research, both at the Welsh Wound Innovation Centre (WWIC)

Most leg ulcers will typically come under the diagnosis of either venous, arterial, mixed aetiology (venous and arterial), lymphoedema or diabetic foot ulcers (National Wound Care Strategy Programme [NWCSP], 2020). A small proportion of lower leg wounds however, may be caused by less common aetiologies that are often associated with, or caused by, inflammation, infection, malignancy, chronic illness or genetic disorders (Isoherranen et al, 2019). These wounds are often referred to as atypical leg ulcers. The diagnosis of an atypical leg ulcer is often challenging in clinical practice, and treatment regimens can be complex requiring a multidisciplinary approach from specialist teams.

Early identification and referral to an appropriate specialist team for a patient suspected of having an atypical leg ulcer is essential and can assist in preventing unnecessary wound deterioration, managing the symptoms effectively, decreasing the risk of complications and improving quality of life for the individual. It is therefore essential that nurses working in the lower limb setting have the skills and knowledge to undertake a structured holistic leg ulcer assessment to assist in identifying the aetiology of the wound and to make prompt and appropriate referrals to relevant specialities as soon as suspicion is raised that an uncommon cause may be present.

Q 4: What is the relationship between lower limb ulceration and the way we walk?

Fran Campbell, gait and biomechanics lead, Accelerate CIC

People with leg ulcers and/or lower limb oedema (swelling) or problems with veins in their legs often shorten their steps and reduce their speed in walking (Tedeschi, 2023). People may also walk shorter distances due to pain or adjust the way that they are walking to avoid pain or restrict their activities (Pirker and Katzenschlager, 2017). This has a huge impact on the 'pumps' in the feet and legs that help move fluid out of the legs (Uhl and Gillot, 2015).

These small adjustments in walking or with reducing activities can over time increase the swelling in the legs and lead to permanent changes in how individuals walk (Noble-Jones et al, 2016). This can lead to changes in the skin that diminish the protective skin barrier which can result in ulceration, restrict movement in joints and increase the risk of leg ulceration and cellulitis (Pearce et al, 2021). These physical changes can then lead to an increased risk of falling in some people (Ambrose et al, 2013).

Assessing a person's mobility is often overlooked within leg wound care and lymphoedema management, but is an essential component of leg ulcer clinical practice (Noble-Jones et al, 2016).

Q 5: What are the risk factors associated with venous leg ulcers?

Karen Staines, director of wound research, Accelerate CIC

Venous leg ulcers remain higher in prevalence over lower limb ulcers of differing aetiologies.

Simple venous leg ulcers identified without risk factors and managed early in onset should heal within 24 weeks (NHS, 2022).

Risk factors may delay wound healing and should be noted during assessment and a plan of action discussed with the patient to manage appropriately. Risk factors include:

- Advancing age
- Obesity
- Immobility
- Limited range of ankle movement
- Recurrent leg ulcers
- History of deep vein thrombosis (DVT)
- Family or personal history of varicose veins
- Being female
- Pregnancies
- Arteriovenous fistula
- History of lower limb trauma
- Sedentary lifestyle
- Occupations where the person has prolonged periods of standing, for example a chef, hairdresser or teacher

(National Institute for Health and Care Excellence [NICE], 2024).

Due to the increased risk of comorbidities that can affect the circulation system because of advancing age, patients may present with signs and symptoms of arterial disease alongside their venous disease. Note that visual skin changes of haemosiderin may lighten but often remain visible for many years after treatment.

Q 6: What should nurses know about pain in leg ulceration?

Fran Worboys, consultant clinical nurse specialist, Accelerate CIC

Pain and associated discomfort are common phenomenon for those with lower limb conditions, including ulceration. It is more than a physical response to a stimulus, being recognised as a bio-psychosocial phenomenon which is individually perceived, experienced and articulated. Patient narratives have described this pain as persistent and debilitating, with the propensity to disrupt lives (Phillips et al, 2018). It adds to the complexity of lower limb management and may pose a barrier to therapeutic management and healing.

Healthcare professionals need to understand and be cognisant with the multifactorial nature of pain and how this has an impact upon the lived experience of patients. Strategies for effective management should relate to the individual and be more comprehensive than reliance upon pharmacological solutions. Early therapeutic intervention and partnering with patients to determine creative solutions will enable a more focused plan of care to deliver positive outcomes (Holloway et al, 2024).

Q 7: How should understanding the impact of social determinants on people's lives change nursing practice?

Alison Hopkins MBE, CEO, Accelerate CIC

We need to understand that all our patients, even with very similar wounds, do not start at the same place. The social determinants of health play a huge role in their healing trajectory. Whether a person is going to be able to partner with the clinician in their treatment is determined by their understanding, language barriers, whether they have other more significant and pressing health concerns, and whether they are overwhelmed by other social issues that are preoccupying their mind and sapping their energy. Yet, these are often only discussed in extreme cases.

Nurses need to be up to speed on the growing inequality of health outcomes for the people they work with. Unfortunately for community nursing, the direct impact of health disparities is not truly recognised and the data on who has any red flags that will reduce their healing is largely hidden.

By having this chapter in this textbook, it is hoped that we can join some of the issues together, making assessment and review more meaningful and holistic. This chapter also attempts to tackle the often negative stereotyping we find in leg ulcer management and the frequent use of the term 'non-compliant'. This remains an unhelpful and belittling term that does nothing to help address the difficult lives that some patients lead.

Q 8: How can nurses improve their practice in leg ulcer management?

Georgina Ritchie, director of education, Accelerate CIC

The key to leg ulcer management, particularly for venous leg ulcers, is strong compression therapy. For too long the application of this potent therapy in its various formats, including bandages, wraps, hosiery and leg ulcer hosiery kits has been viewed as a task. Compression therapy is much more complex than this and requires an understanding by the practitioner of the scientific principles so that they can achieve the optimum dose of this therapy to promote healing of ulceration and management of swelling and chronic oedema. These scientific principles are underpinned by the art of application, which requires careful consideration and education.

For all too long education around compression therapy has been viewed as the 'rolling out' of workshops which have not promoted a deeper understanding. Registered nurses are duty bound to access continuing professional development (CPD) to underpin their professional practice — ethically you can campaign for the right to access objective structured education to ensure that you understand both the art and science of this potent therapy. You have the ability to change people's lives with this therapy if you know what you are doing. So, in answer to the question, how can nurses improve their practice in leg ulcer management — I would start by saying education is key.

Q 9: What role can nurses play in the prevention of leg ulceration?

Jane Harry, tissue viability service team leader

Nurses are pivotal in the prevention of leg ulceration and it is essential that we get better at recognising the early signs of venous disease, and that patients know when and how to seek help to prevent progression of the disease and from ulceration occurring. The numbers of patients living with venous ulcers has doubled between 2012/13 and 2017/18 (Guest et al, 2020). To manage this rise in numbers and the changing workforce, we as nurses need to look for a different or more efficient way of caring for these patients and make prevention and self-management key priorities. We need to be equipping patients with the knowledge and tools (physical exercise, skin care regimen, how to prevent ulceration, signposting for when things go wrong and how to seek help and support) to self-manage their long-term condition of venous disease and insufficiency.

The prevention and management of venous ulceration is predominantly a nurse-led service. Two-thirds of wound care is delivered in the community, which equates to 50% of the community workload of which around 70% of these wounds are venous leg ulcers (Guest et al, 2020).

As healthcare professionals, we need to get better at identifying patients with early signs of venous disease and ensuring that they have access to early assessment, education and treatment, and onward referral for early venous intervention. We should be checking with patients who are being reviewed for long-term conditions for any signs and symptoms of venous disease and ensuring that these patients get early assessment and referring them for early venous intervention as per NICE guidance (2021). All patients should be taught to recognise the signs of tissue breakdown and how and when to access their healthcare professional to get timely assessment.

The recurrence of venous leg ulceration is another area in which we need to focus, as rates for venous leg ulcer recurrence are reported to be between 26–69% (NICE, 2021). Primary prevention strategies need to be put into place and that is to wear compression hosiery, referral for vascular intervention and helping patients to be compliant. Moreover, we need to work with patients to find possible solutions that are acceptable to the patient.

The ability of the person to tolerate hosiery is often low due to a number of factors, such as difficulty getting the garment on and off or not understanding the benefits of wearing the garment. Community nurses are ideally placed to provide this care and advice to patients and are pivotal to changing the culture around well legs, leg ulceration and early detection of venous disease changes.

If we get better at prevention and get patients recognising early signs of venous disease and using appropriate strategies, we will reduce disease progression for these patients and lessen the number of patients with leg ulceration and tissue breakdown in the future. JCN

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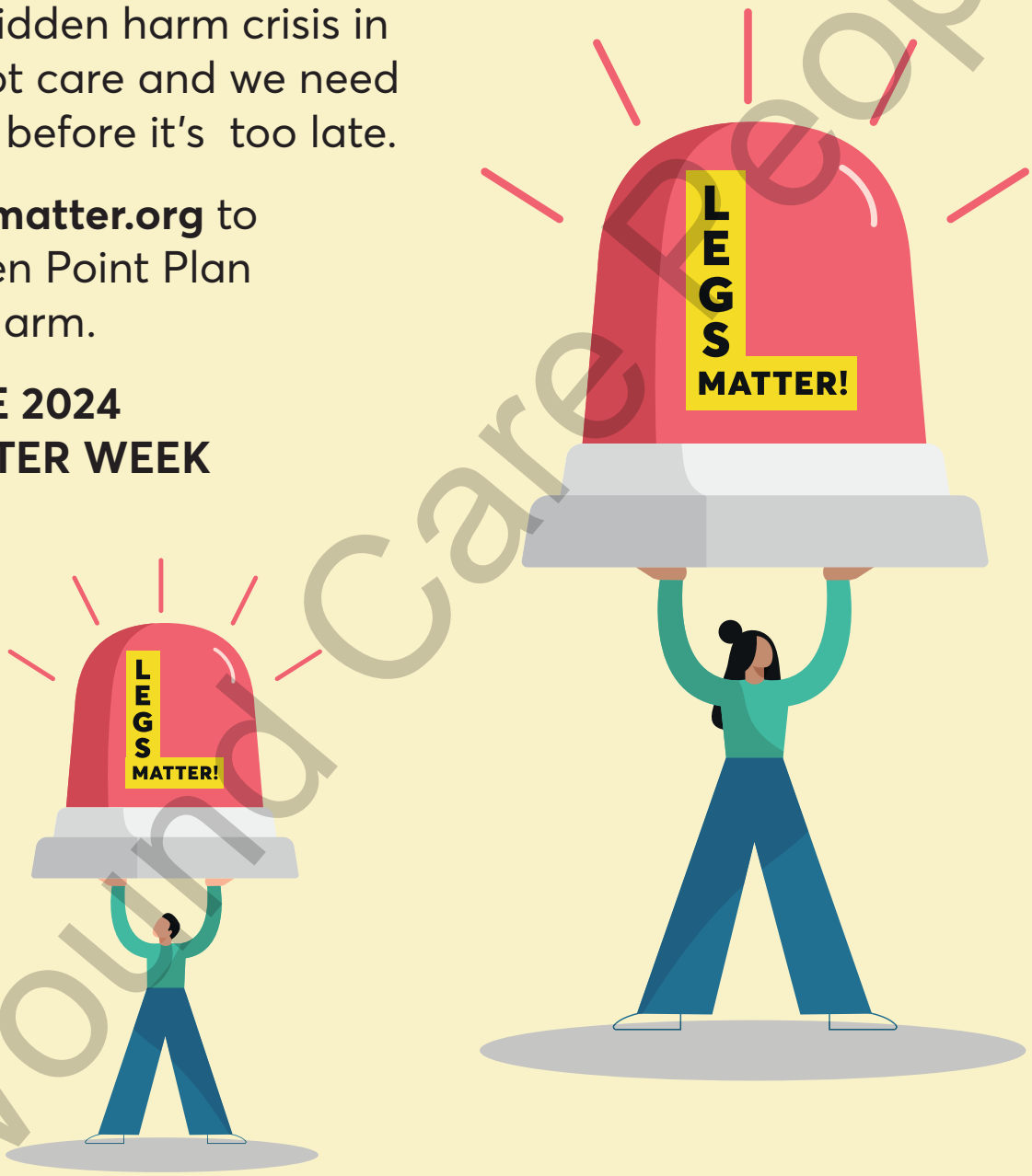

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