JOURNAL OF COMMUNITY NURSING
JCN

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Volume 37
Number 2
April/May
2023

How can community nurses care for women experiencing the menopause?

An opportunity to learn more about lymphoedema and related conditions

Lynch syndrome: following the leads to save lives

Enough is enough... ensuring equity of access to wound care

Understanding health inequalities in sickle cell disease

Do risk assessments prevent pressure ulcers?

Differentiating between cellulitis/erysipelas and alternative causes of 'red legs'

Integrated care bundle for the management of chronic wounds

Differences in NHS continence/bladder/bowel services in Wales compared to England

Long Covid: developing a virtual rehabilitation programme

Improving pressure area risk assessment and management for people living with dementia

Tool to improve communication and enable rapid identification of sepsis

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"MORE THAN SILVER" STEALS THE SHOW! OUR RESIDENT WOUNDCARE SPECIALISTS RAVE REVIEW – PAGE 27
PLUS... WHO IS BIOFILM, ANYWAY? OUR UNCOVER REPORT REVEALS ALL – PAGE 13
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Contents

Let's talk menopause 4
Annette Bades

Community matters — How can community nurses care for women experiencing the menopause? 8

An opportunity to learn more about lymphoedema and related conditions 12
Christine Moffatt CBE, Melanie Thomas MBE

Lynch syndrome: following the leads to save lives 14
Claire Coughlan

Enough is enough... ensuring equity of access to wound care 16
Ellie Lindsay OBE, Julian Tyndale-Biscoe

Understanding health inequalities in sickle cell disease 20
Dr Nizamul Islam

Clinical skills: Pressure ulceration — do risk assessments prevent pressure ulcers? 24

Differentiating between cellulitis/erysipelas and alternative causes of 'red legs' 30
Annemarie Brown

Integrated care bundle for the management of chronic wounds 38
Theresa Hurd, Julie Murdoch

Differences in NHS continence/bladder/bowel services in Wales compared to England 46
Ann Yates

Long Covid: developing a virtual rehabilitation programme 51
Hannah Brady Sawant, Thuvia Flannery, Rachel Tarrant, Jenna Shardha, Denise Ross

Improving pressure area risk assessment and management for people living with dementia 57
Alison McGrath, Zena Aldridge

Tool to improve communication and enable rapid identification of sepsis 63
Linda Nazarko

Journal of Community Nursing
incorporating *Journal of*
District Nursing
April/May 2023

Unit G, Wixford Park, George's Elm Lane,
Bidford on Avon, Alcester B50 4JS
ISSN 0263 4465
t: +44(0) 1789 582000
e: mail@jcn.co.uk
http://www.jcn.co.uk

Journal of Community Nursing is indexed with CINAHL and British Nursing Index (BNI)

Published bi-monthly and available free online for community and district practitioners based at primary and secondary care locations throughout the United Kingdom. Also distributed with subscription.

Institutional and overseas subscription rates:
United Kingdom: £155.00
Overseas: £285.00

UK subscription rate:
Six issues per year: £80

If you would like to comment on any of the articles in JCN, or indeed have ideas of your own for an article, please contact: binkie@jcn.co.uk

Let's talk menopause

Due to increased media attention that the menopause continues to receive, awareness has thankfully been raised around its possible effects and potential to have a negative impact on wellbeing. Many trusts are now providing information sessions that staff can attend to improve their knowledge and how to access support, alongside sessions for managers to ensure awareness and that support is offered. I recently attended one and gained a great deal from it, but on reflection was alarmed by how little I had known! So please, do take some time to read the 'Community matters' piece in this issue (*pp. 8–11*), as I am sure you will find it full of really useful information.

Improving knowledge and keeping on top of continuous professional development (CPD) can be hard with busy caseloads and the pressures of everyday life. But, I hope that the variety of articles in this issue might go some way to making this easier for you. Identification and early diagnosis of conditions is always paramount, as highlighted in the piece on Lynch syndrome (*pp. 14–15*), which if identified early can reduce the risk of cancer. Screening for sepsis is another area that we should all be alert to, especially with more complex patients being treated in the community. Here, Linda Nazarko looks at the revised National Early Warning Score 2 (NEWS2) (*pp. 63–66*) and how alongside clinical judgement it can help to identify, and so escalate, acutely unwell patients. We also explore the risk of pressure ulcer development in patients with dementia and how to ensure person-centred risk assessment and management plans (*pp. 57–62*). These are just a few of the articles which I found particularly helpful.

As always, do check out when the JCN study days are coming to your area. New sessions this year include the fundamentals of healing wounds; proactive wound healing with a biofilm strategy; getting hands on with self-care solutions; skin tears: recognising, assessing and managing them; demystifying the use of NPWT in the community; as well as a practical guide to vascular assessment (ABPI/TBPI). So, why not come along and enjoy a day of free education and networking with colleagues and friends (www.jcn.co.uk/events).

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

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References: **1**. Agren M (1990) Studies on Zinc in Wound Healing. Linkoping University Medical Dissertations No. 320. Department of Pathology II, Faculty of Health Science. Linkoping, Sweden. **2**.Boyd AS (2010) Ichthammol revisited. Int J Dermatol 49: 757–60 **3**. Evolan Pharma AB (2020) Data on file. Danderyd, Sweden. **4**.Gayko G, Cholcha W, Kietzmann M (2000) Anti-inflammatory, antibacterial and anti-mycotic effects of dark sulfonated shale oil (Ichthammol). Sonderdruck aus Berl. Munch. Tierarztl. Wochenschr. 113, Heft 10. **5**. Kogan S, Sood A, Granick MS (2017) Zinc and wound healing: A review of zinc physiology and clinical applications. Wounds 29(4): 102–6 **6**. Lansdown ABG, Mirastschijski U, Stubbs N et al (2007) Zinc in wound healing: Theoretical, experimental, and clinical aspects. Wound Repair Regen 15: 2–16

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 freelance tissue viability nurse (TVN) and health visitor. My true passions are in pressure area care and moisture-associated skin damage. I sit as a registrant panel member on the NMC Fitness to Practice Hearings, and work with the Institute of Health Visiting (IHV), where I have recently supported the development of a training package on domestic violence and abuse (DVA). I am delighted to be part of the JCN editorial board, where current best practice can be discussed.
Melanie Lumbers

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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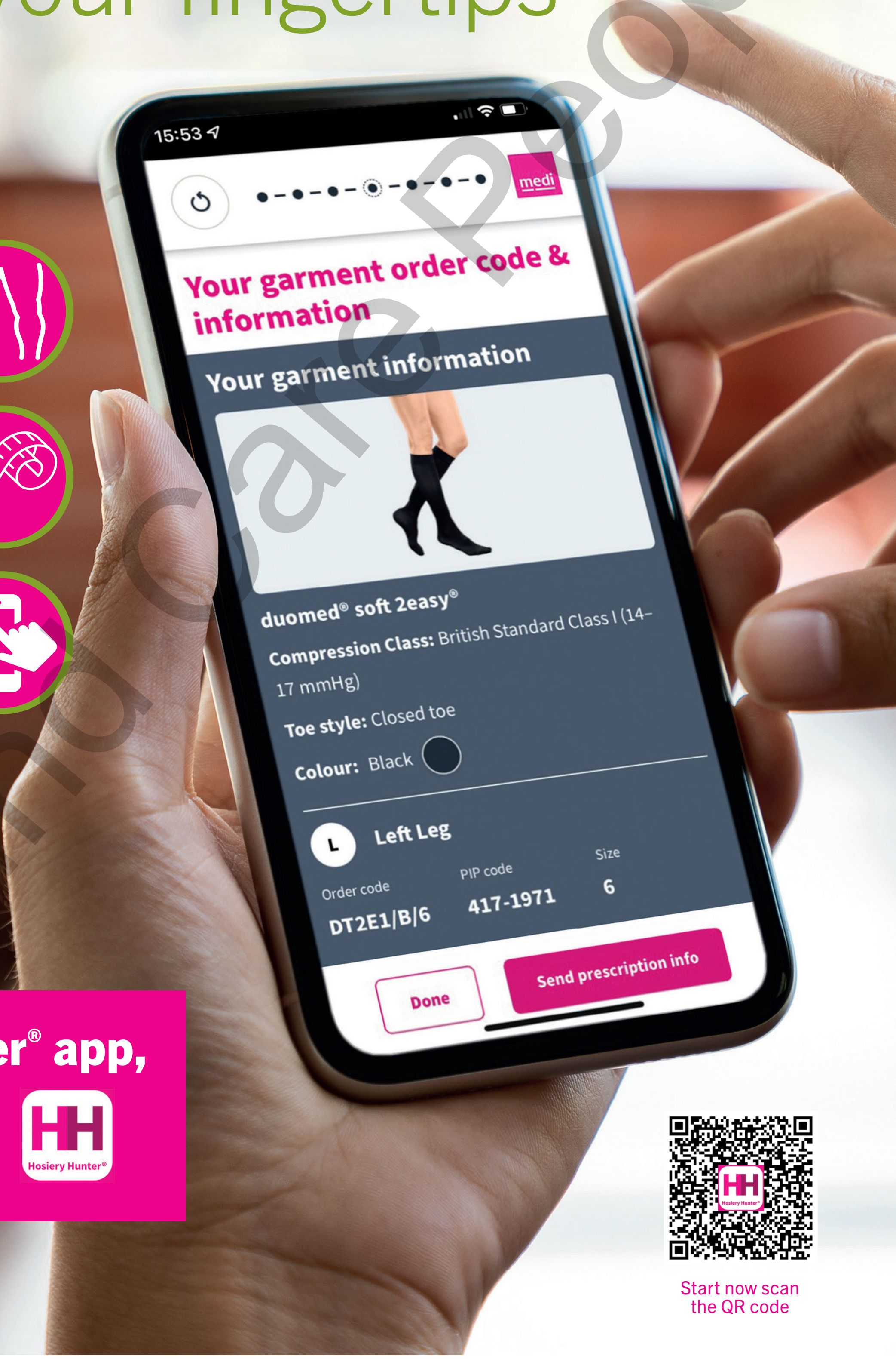

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In each issue of the *Journal of Community Nursing*, we investigate a topic affecting our readers. Here, we ask...

How can community nurses care for women experiencing the menopause?

Most people who work in health care would imagine that they have a basic grasp of the menopause and its main symptoms. They'd probably be able to tell you about hot sweats, anxiety and mood swings. Some of them might even impress you with their knowledge of period cessation or hormone depletion.

For many women, however, including those working in health care, the realities of living with menopause are still shrouded in misinformation and embarrassment. Not to mention sexism. Often lumped together under the dismissive term 'women's problems', it's an often-repeated joke that if men experienced the menopause there would have already been years of well-funded research, a host of treatments, or even a 'cure'.

Lately, menopause has been gaining increased media attention, with the effects on women's wellbeing and working lives coming under intense scrutiny. But what impact will this have on the community nursing workforce, many of whom are women themselves?

FIRST THINGS FIRST – WHAT IS THE MENOPAUSE?

Put simply, menopause begins when a woman's periods cease due to reduced levels of hormonessuch as oestrogen and progesterone, and ovarian reproductive function ends, usually between the ages of 45 and 55. As well as lowered hormone levels, menopause can be caused by a host of reasons including surgeries such as oophorectomy (removal of the ovaries) and hysterectomy, as well as treatments such as chemotherapy. Sometimes there are genetic causes of menopause, or the cause my simply be unknown ('Overview: menopause' — www.nhs.uk).

Menopause is usually diagnosed retrospectively 12 months after the woman's final period and is responsible for up to 30 symptoms including anxiety, mood swings, problems with memory or concentration (so-called 'brain fog'), altered libido, hot flushes and vaginal dryness and irregular periods.

TREATMENT OPTIONS

The commonest treatment for menopause is hormone replacement therapy (HRT), which aims to replace a woman's depleted hormones with oestrogen or progestogen (a synthetic version of progesterone). HRT either includes both hormones (combined HRT) or oestrogen-only HRT (recommended if the woman has undergone hysterectomy). HRT is available in various preparations such as tablets, patches, gels and implants ('Types: hormone replacement therapy (HRT)' — www.nhs.uk).

HRT is not suitable for all women, however, such as those who have had some cancers, or a history of blood clots and high blood pressure. There are other ways that women can ease the symptoms such as eating a balanced diet, regular exercise, reducing stress and giving up smoking. Some medicines such as antidepressants, clonidine (medicine that acts against hot flushes) and tibolone (a synthetic steroid) can also ameliorate symptoms, as can complementary therapies such as St John's Wort ('Alternatives' — www.nhs.uk).

HIDING IN PLAIN SIGHT

Menopause is a significant hidden health issue. In the UK, around 13 million women are estimated to be peri or post-menopausal, and approximately three-quarters of all

What is the perimenopause?

Perimenopause marks the natural transition to menopause and develops when a woman experiences the symptoms of menopause before their periods have stopped. The age at which menopause develops can also have significant consequences for a woman's bone and cardiovascular health, with younger onset consistently linked with a higher risk of cardiovascular disease, osteoporosis, and bone fractures. These risks are particularly high in women who develop the menopause at an early age due to prolonged oestrogen deprivation ('Bone and heart health in menopause' — www.sciencedirect.com).

I was really disappointed with the recent Government response to the Committee's First Report of 2022–2023 on menopause and the workplace. Five of the committee's 12 recommendations were rejected, including calls for mandatory menopause training for GPs and a national formulary specifically for hormone replacement treatment (HRT). These measures would no doubt improve local access to evidence-based NHS prescriptions nationally and stop the current so called 'postcode lottery' leading to many patients having to wait for often lengthy NHS menopause specialist referrals or expensive private consultations.

Ironically, the governmental report came on the same day as the publication of the collaborative 'Hologic Global Women's Health Index' report which provides data and insights from the experiences of women and girls from 122 countries. In the foreword, the report's CEO states that 'Women's health has taken a back seat to nearly everything else going on in the world', with over one billion women having reported that they had not consulted a healthcare professional in the past year. He goes on to call for an urgent commitment to better health care for these patients because ultimately 'women form the backbone of our families, communities and societies'.

Although more women are becoming more knowledgeable and empowered to seek help for their menopause, many continue to face barriers in terms of local NHS services and expertise. Women are still struggling to get help with their perimenopause and menopause symptoms, and the growing health divides between those in high- and low-income economies is well recognised. We must all work together with like-minded individuals and organisations to change this swiftly for our current patients and for future generations.

Sue Thomas
Advanced nurse practitioner, Leamington Spa

said their symptoms had affected their work, many experienced menopause being treated as a joke in the workplace ('Landmark study: menopausal women let down by employers and healthcare providers' — www.fawcettsociety.org.uk).

The World Health Organization (WHO) has stated that many women may not even realise that their symptoms are menopause-related, or that there are treatments that can help. Stigma is also a significant issue, with many women too embarrassed to visit healthcare providers. Even more concerning for nurses, the WHO found that many healthcare training programmes have only a limited — if any — focus on the menopause ('Menopause' — www.who.int').

CHANGE IS ON THE WAY

One of the tragedies of menopause is that despite the available treatments, not all women are offered help. According to the Fawcett Society, only 39% of women were offered HRT by a GP or nurse when they began experiencing menopause symptoms, and perhaps even more shockingly, as few as 14% were actually taking HRT ('Landmark study: menopausal women let down by employers and healthcare providers' — www.fawcettsociety.org.uk).

This is partly to do with recent HRT shortages. Due to the rise in menopause campaigning and media attention, demand for HRT has more than doubled in the past five years. There have also been issues with manufacture, with some HRT ingredients in short supply due in part to Covid-19, with the government even resorting to the appointment of an HRT 'tsar' to address supply issues ('What is HRT and why are there shortages in the UK? — www.theguardian.com).

Thankfully, women might not have to wait too much longer for these problems to be addressed. Just last month, the government announced that from 1 April 2023, up to 400,000 women across England would get improved access to cheaper HRT through a new prescription prepayment certificate, reducing HRT costs to under £20 a year ('Hundreds of thousands of women experiencing menopause symptoms to get cheaper HRT' — www.gov.uk).

Also last month, ministers and senior healthcare staff from across the UK met for the inaugural meeting of the grandly titled UK Menopause Taskforce, which aims to 'co-ordinate and work together on support for women across all nations'. One of the taskforce's first announcements was a consultation on providing one HRT product (a form of vaginal oestrogen) over the counter at pharmacies ('Nation unite to tackle menopause taskforce' — www.gov.uk).

Attitudes to the menopause are also changing in the NHS, which employs the majority of community nurses. In November 2022, NHS

As a district nurse team manager working in the community, I am very aware of the challenges that the menopause brings to many women. I have been taking HRT for about 10 years, as I started having menopausal symptoms quite early but was very fortunate to be working at that time in general practice and the GPs there were really knowledgeable and gave me excellent advice. I have since tried to increase my knowledge about this subject for my own benefit and also to help those I work with .

Unfortunately, GPs are often not given much training in this area, and so there seems to be a lot of variation in the information and advice given to peri-menopausal and menopausal women.

Up until recently, menopause has not been spoken about freely, but fortunately some celebrities have now started raising awareness and from this there has been more public awareness as well. As a community nurse, I think it is really important that we have knowledge and awareness of the signs and symptoms of the menopause, so that we can pick up on clues from our patients. I am sure we have all cared for women who have been forced into an early menopause due to treatments for cancer etc, but how aware are we of what this can actually mean to the woman herself, and do we think about it when assessing all our female patients? Most nurses would have some awareness of hot flushes, and perhaps weight gain ,but are we aware of the brain fog, fatigue, depression, changes in mood, changes in hair and skin condition, plus many other symptoms that can also occur and what treatments are available.

Leading a team, I also think I have a responsibility in caring for the members of the team and this involves having an awareness of any challenges that individuals may be facing, including the perimenopause and menopause. Talking freely about it at work has encouraged others to seek help in managing their symptoms and also increased their own knowledge to help others.

I am really pleased to see that training on the menopause has been offered to managers recently; the pre-payment certificate for HRT prescriptions is also a really positive step forward. I hope that awareness of the symptoms of the menopause and the impact that it can have on individuals in all aspects of their lives continues to grow, and that it is discussed openly both in the workplace and socially.

Gail Goddard
Mobile district nurse team manager, Hounslow and Richmond Community Healthcare; associate lecturer, Bucks New University

England released guidance to support the Menopause Care Improvement Programme. The programme's stated aim is to help NHS managers and staff support colleagues experiencing menopause symptoms. It lays out advice such as line managers having regular wellbeing conversations with staff, as well as considering any reasonable adjustments such as flexible working that may support colleagues experiencing menopause symptoms ('Supporting our NHS people through menopause: guidance for line managers and colleagues' — www.england.nhs.uk).

However, as with all things government-related, words are not always converted into actions. In January of this year, ministers rejected many proposals from a Women and Equalities Committee, which had previously stated that menopause was causing the UK economy to 'haemorrhage talent'. The rejected proposals included 'menopause leave' for women in the workplace, and the classification of menopause as a protected characteristic under the Equality Act ('Menopause leave' trial rejected by ministers' — www.bbc.co.uk).

WHAT CAN YOU DO?

While policy change is welcome, it is also notoriously slow at producing results. In the meantime, what practical solutions can community nurses use to support colleagues and patients who may be experiencing the menopause?

According to the Royal College of Nursing (RCN), nursing managers should encourage 'open and honest discussions about menopause in the workplace', and nurses should have access to a range of support to help those struggling with menopausal symptoms. Ideas include providing workplace menopause information sessions or running 'menopause cafés', where nurses can get together and discuss symptoms, as well as looking for patterns of sickness which may indicate a colleague is struggling (‘Menopause at work’ — www.rcn.org.uk).

The Queen’s Nursing Institute Scotland (QNIS) also has some proposals for how individual community nurses can support colleagues and patients who may be going through the menopause. Writing in a QNIS blog post, Hilda Campbell outlines how nurses can raise awareness of the menopause by putting up information posters in clinics and staff rooms. An example poster is available here (pausitivity.co.uk/wp-content/uploads/2019/12/Poster-Logo.pdf).

> **‘You may be going through the menopause yourself or have a patient or colleague who is experiencing symptoms. However, as community nurses, it is important to know that a condition that was once taboo is now being brought into the open, not least in the NHS.’**

Campbell also recommends short, weekly menopause clinics that can be held in practices or community centres and which encourage women to discuss menopause in an ‘accessible, respectful and confidential space’ (see details here www.menopausecafe.net) (‘The role of community nurses in raising awareness of signs and symptoms of the menopause’ — www.qnis.org.uk).

Education is also important. For community nurse managers, ensuring that staff are aware of the menopause and how to broach it with patients is vital. Courses from organisations such as the British Menopause Society (BMS) are aimed specifically at primary care nurses who regularly see women with menopause symptoms. These courses cover issues such as how to assess the menopause, the risks and benefits of HRT, complementary therapies, and sex and the menopause (‘The Menopause Course for nurses’ — thebms.org.uk).

References and useful resources

Menopause: overview — www.nhs.uk/conditions/menopause/

Bone and heart health in menopause — www.sciencedirect.com/science/article/pii/S1521693422000414?via%3Dihub

What is the menopause and what are the signs? (BBC) — www.bbc.co.uk/news/health-48258910

Landmark study: menopausal women let down by employers and healthcare providers — www.fawcettsociety.org.uk/news/landmark-study-menopausal-women-let-down-by-employers-and-healthcare-providers

Menopause (WHO) — www.who.int/news-room/fact-sheets/detail/menopause

Types: hormone replacement therapy (HRT) (NHS) — www.nhs.uk/conditions/hormone-replacement-therapy-hrt/alternatives/

What is HRT and why are there shortages in the UK? www.theguardian.com/society/2022/apr/25/hrt-shortage-uk-why-hormone-replacement-therapy

Hundreds of thousands of women experiencing menopause symptoms to get cheaper HRT — www.gov.uk/government/news/hundreds-of-thousands-of-women-experiencing-menopause-symptoms-to-get-cheaper-hormone-replacement-therapy

Nation unite to tackle menopause taskforce — www.gov.uk/government/news/nations-unite-to-tackle-menopause-taskforce

Supporting our NHS people through menopause: guidance for line managers and colleagues — www.england.nhs.uk/long-read/supporting-our-nhs-people-through-menopause-guidance-for-line-managers-and-colleagues/

Menopause leave’ trial rejected by ministers (BBC) — www.bbc.co.uk/news/uk-politics-64381216

Menopause at work (RCN) — www.rcn.org.uk/clinical-topics/Womens-health/Menopause/Menopause-at-work

QNIS blog — www.qnis.org.uk/blog/the-role-of-community-nurses-in-raising-awareness-of-signs-and-symptoms-of-the-menopause

BMS Menopause course for nurses — https://thebms.org.uk/education/menopause-education-for-nurses/

The Hologic Global Women’s Health Index: Pathways to a Healthy Future for Women. 2021 Global report — https://hologic.womenshealthindex.com/sites/default/files/2022-09/Hologic_2021-Global-Women%27s-Health-Index_Full-Report.pdf

Menopause and the workplace: Government response to the Committee’s First Report of Session 2022–2023 (UK Parliament) — https://publications.parliament.uk/pa/cm5803/cmselect/cmwomeq/1060/report.html

For many women the menopause remains an area of health that is not openly discussed, only silently endured. You may be going through the menopause yourself or have a patient or colleague who is experiencing symptoms. However, as community nurses, it is important to know that a condition that was once taboo is now being brought into the open, not least in the NHS.

Simply by being unafraid to talk freely about the symptoms of menopause in the workplace and in your patients’ homes, you will be at the forefront of a momentum shift in women’s health. **JCN**

An opportunity to learn more about lymphoedema and related conditions


Christine Moffatt CBE (top), chair; Melanie Thomas MBE (bottom), scientific committee chair, International Lymphoedema Framework (ILF)

Lymphoedema is a chronic, progressive condition, which can have a significant impact on patients — both physically and psychologically. While there is no cure, it is vital that the condition is effectively managed to prevent deterioration and its impact on patient quality of life.

It is with this in mind that the International Lymphoedema Framework (ILF), a charitable organisation, was started to create a better everyday life for people worldwide who are living with lymphoedema and related disorders. Each Framework consists of a team of healthcare professionals, including clinicians, researchers, and technicians who combine scientific, clinical and technical knowledge to improve the health, safety and quality of life for people with lymphoedema and associated conditions. Currently, there are 17 Frameworks (equating to 17 countries) across the globe, all working to the vision and ethos of the ILF to improve outcomes for people who live with this long-term condition within their locality.

The choice of charitable status is a strong message to the lymphoedema community on the ethos and vision that govern the ILF. It is also a guarantee of the independence of the ILF in the ethical use of its resources and its capacity to actively contribute to the improvement of the management of lymphoedema worldwide, especially in developing countries.

STRONGER TOGETHER

This year, the ILF, in collaboration with the Welsh Framework, Lymphoedema Wales, and the International Lipoedema Association (ILA) will come together from all over the world, to share knowledge and experiences at the 11th International Lymphoedema Conference in Nottingham (13–15 June). Appropriately, the theme for this year's ILF conference is 'Stronger Together', and together, we aim to achieve a greater awareness of lymphoedema alongside related disorders, to make sure it is prioritised on the healthcare agenda, worldwide.

We have a packed scientific programme where delegates can come to update their knowledge of all the latest research and guidelines on how to assess and manage people with this group of disorders effectively. There is an industry exhibition where you can learn about the latest products and innovations and how you can use them in your practice, including hands-on skills zones where you can learn more about bandaging techniques, for example. Finally, the three days present the opportunity to network with colleagues and global leaders in the field of lymphoedema and affiliated therapeutic areas.

Attending the conference aims to support you in delivering evidence-based care in an efficient and non-wasteful way. This approach has never been more important, not only for the efficient running of healthcare organisations globally, but also to improve outcomes for patients.

At the ILF, everything we do is to improve the lives of people with lymphoedema and we are delighted to announce our patient day on Thursday 15 June, which will be running as part of the conference to allow people with lymphoedema to learn more about their condition and to share experiences with others living with or caring for someone with lymphoedema and associated conditions. Highlights of the patient programme include managing antibiotic use for the management of cellulitis, how to live well with lymphoedema, and the opportunity to ask questions of experts in this area.

We hope you and your patients will join us in being 'Stronger Together' and look forward to seeing you in Nottingham. **JCN**

More information...

and to register, visit: www.lympho.org/11th-international-lymphoedema-framework-conference-2023

Join our Professional Networks

The QNI has a number of national networks for nurses working in the community and primary care.

All of our networks were created to connect community nurses in their specific fields of work and to build a strong support network where they are free to share best practice and innovations to improve patient care. The networks are free to join and offer free online events.

They range from the Homeless and Inclusion Health Network created in 2007 to the QNI's newest network, the Integrated Care Board (ICB) Chief Nurse Network, launched in 2023.

Our networks:

- Care Home Nurse Network
- Community Children's Nurse Network
- Community Nurse Executive Network*
- Community Nursing Research Forum
- Homeless and Inclusion Health Network
- ICB Chief Nurse Network*
- Infection Prevention and Control (IPC) Champions Network
- Long Covid Nurse Group
- Queen's Nurse Network*

*these networks require an application process to join

Scan to access the networks

www.qni.org.uk

Lynch syndrome: following the leads to save lives

Claire Coughlan, clinical lead, Bowel Cancer UK

Research shows that there could be over 175,000 people in the UK with the genetic condition Lynch syndrome (National Institute for Health and Care [NICE], 2016). As healthcare professionals, it is vital to follow the evidence to determine who may be affected by Lynch syndrome in order that they can have appropriate screening to decrease their risk of bowel cancer and other related cancers. Those leads are largely found in two ways. First, through testing those with bowel cancer to see if they have Lynch syndrome so that their relatives can be tested to see if they have also inherited the condition, this is done in secondary care. The second way is through identifying individuals with what are termed 'high risk' family histories so that they can be tested for Lynch syndrome. This can be achieved in primary or secondary care.

WHAT IS LYNCH SYNDROME?

Lynch syndrome is an inherited genetic condition. It is caused by a germline pathogenic variant in one of four DNA mismatch repair (MMR) genes: MLH1, MSH2, MSH6 and PMS2. Pathogenic variant in another non-MMR gene, known as EPCAM, can also cause Lynch syndrome (NHS England, 2021). MMR genes encode proteins and are involved in recognising and repairing errors in DNA sequence, which occur when DNA is replicated during cell division. Variants in MMR genes can lead to failure to repair DNA errors. A child who has a parent with a pathogenic variant has a 50% chance of inheriting that variant. About half of all people with Lynch syndrome develop colorectal cancer (NHS England, 2021). It is also responsible for other cancers, including endometrial, gastric, small bowel, urothelial and brain cancers. Lynch syndrome is estimated to cause over 1,100 cases of bowel cancer in the UK, with many of them occurring in those under the age of 50 (NHS England, 2021).

> **'It is important that people with Lynch syndrome have regular colonoscopies. This can reduce the risk of cancer by removing polyps before they can change from adenomas (benign polyps) to cancers.'**

NICE GUIDANCE FOR DETECTION OF LYNCH SYNDROME

Since 2017, NICE has recommended that all people diagnosed with colorectal cancer are tested for Lynch syndrome using immunohistochemistry or microsatellite instability testing (NICE, 2017). In October 2020, NICE also recommended that all people diagnosed with endometrial cancer are tested for Lynch syndrome using immunohistochemistry.

The Lynch syndrome pathway can be split into four stages (NHS England, 2021):

- Stage 1: Initial tumour testing:
  - 1. Biopsy taken and cancer diagnosed
  - 2. Test tumour using immunohistochemistry or microsatellite instability
- Stage 2: Germline testing:
  - 3. Test suggests cancer could be caused by Lynch syndrome
  - 4. If not already done, consent to perform germline testing
  - 5. Perform germline testing
- Stage 3: Management of index:
  - 6. If Lynch syndrome is confirmed, communicate results to patient and refer to genetics service
  - 7. Agree a screening and management plan and refer to relevant services
- Stage 4: Cascade testing:
  - 8. Cascade testing of at-risk family members.

At present, the number of patients being tested for Lynch syndrome at point of colorectal cancer diagnosis varies greatly from trust to trust (NHS England, 2021). Cancer alliances across the UK have put in place plans to improve this.

WHY IS TESTING FOR LYNCH SYNDROME SO IMPORTANT?

It is important that people with Lynch syndrome have regular colonoscopies. This can reduce the risk of cancer by removing polyps before they can change from adenomas (benign polyps) to cancers. Colorectal cancers occur in people with Lynch syndrome by developing through an accelerated adenoma to carcinoma sequence (Edwards and Monahan, 2022).

A colonoscopy is a test that looks inside the bowel for cancer and polyps. If detected early enough, polyps can be removed at the time of the colonoscopy so that they never get the chance to progress into cancers.

UK guidelines for those with proven Lynch syndrome recommend colonoscopy surveillance every two years (Edwards and Monahan, 2022).

Following a clinical consensus meeting facilitated by Bowel Cancer UK, there is now a move for the national bowel cancer screening programme to deliver the Lynch surveillance programme so that patients can receive the same high quality screening programme as the eligible asymptomatic population (Bowel Cancer UK, 2022).

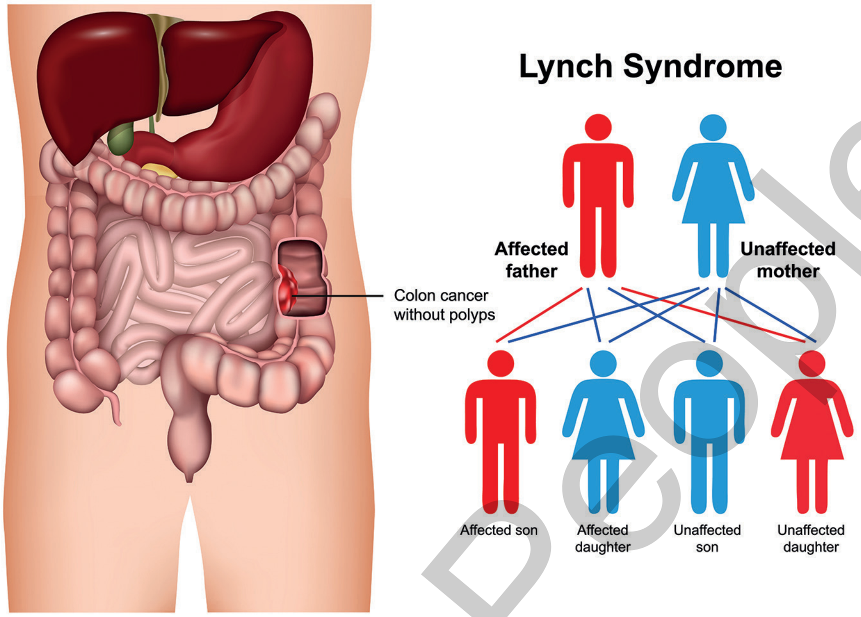
In addition to surveillance, there is now good evidence that the taking of aspirin in those with Lynch syndrome significantly reduces incidence of colorectal cancer (Edwards and Monahan, 2022). NICE introduced this recommendation in 2020, with the caution that this should be following clinical consultation (NICE, 2020).

HOW CAN WE HELP WHEN WORKING IN PRIMARY CARE?

Identifying those that may have Lynch syndrome but are unaware and therefore not benefitting from surveillance can genuinely save lives. So, when talking to patients it is important to take the opportunity to ask about family history. There are some red flags to remember — the easiest way is through the three, two, one rule.

Lynch syndrome's associated cancers:

- Colorectal
- Endometrial
- Ovarian
- Stomach
- Pancreas
- Ureter or renal pelvis
- Biliary tract
- Brain
- Bladder
- Sebaceous gland adenomas.



> **'Identifying those that may have Lynch syndrome but are unaware and therefore not benefitting from surveillance can genuinely save lives.'**

Are there three affected relatives with bowel cancer or Lynch-associated cancers, across two generations, with at least one person affected under the age of fifty? (Muller et al, 2019).

If you identify a family history such as that described by the three, two, one rule, it is vital that the patient, should they agree, be referred to a local genetics service or family history clinic so that genetic testing and appropriate surveillance can be arranged.

The importance of identifying those affected by Lynch syndrome for those working in both primary and secondary care in order to save lives cannot be underestimated. What is clear though is that the availability of guidance and pathways described above and the tireless work of healthcare professionals involved provide a clear opportunity for those working in primary and secondary care to make a difference. **JCN**

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More information

Please visit: bowelcanceruk.org.uk or contact: professionals@bowelcanceruk.org.uk

Enough is enough... ensuring equity of access to wound care


Ellie Lindsay OBE FQNI (top), life president, Lindsay Leg Club Foundation; Julian Tyndale-Biscoe, senior partner, FINN Partners

Wound management places a major demand on healthcare resources, which will continue to escalate with the increasing age and associated diseases of patients. But, that is no reason for inconsistent treatment, or treatment where the concerns and priorities of patients are not being addressed.

Of course, prevention and education need to be a priority, along with evidence-based wound treatments and research into developing existing pathways. However, patients also have rights and expectations that need to be considered. In our view, it is here where we have fallen down and where we continue to do so.

'Limited allocation of time and resources, a lack of consistency in care, and a lack of planning and provision for wound care during overall treatment are all obstacles that, in the authors' opinion, individuals with leg ulcers face.'

Leg ulceration has been referred to as a 'hidden epidemic' (MacLellan, 1994; Lindsay, 2017). This phrase has a double meaning. The scale of the problem is hidden because we still only have estimates to rely on; the number of cases that healthcare professionals see and treat are likely to be far fewer than the actual number of leg ulcers. At the same time, the authors of this viewpoint have met several patients both in the community and through our Leg Club network who had hitherto been virtually hidden away, isolated, depressed and attempting unsuccessfully to self-care.

This epidemic has been exacerbated by an ever-ageing population with more comorbidities and extended periods of ulceration (Lindsay et al, 2017). The impact on their lives cannot be underestimated. Indeed, leg ulceration can lead to prolonged ill-health; the average ulcer duration is 12 months, with an average recurrence rate of 70% (Kumar et al, 2020). The work of co-author, Lindsay, espouse that patients with leg ulceration experience poor psychological health and a greater risk of depression, less perceived social support and greater social isolation.

Often, a persistent skin lesion is an indication of a wider systemic illness that is already being treated and is dismissed until a severe wound condition has occurred. It has been stated that 420,000 of the 730,000 leg ulcers treated by the NHS in the UK each year were classified as 'unspecified' (Guest et al, 2015), suggesting that the system in place has not been able to identify the likely reason for the wound. Without being able to understand the underlying cause, decisions cannot be made on the best course of treatment for patients. This, in turn, means that optimal care is not being provided.

Limited allocation of time and resources, a lack of consistency in care, and a lack of planning and provision for wound care during overall treatment are all obstacles that, in the authors' opinion, individuals with leg ulcers face. This is compounded by the fact that patient information on wound care is at best inconsistent and at worst non-existent. We all have considerable first-hand experience of patients who do not know what they are going to face when they have a chronic wound, who they should contact and how.

Since wound care is integrative and multifactorial, a range of health workers and services might be involved in a patient's treatment course, which can mean that information gets lost in translation — for example, healthcare practitioners may use contrasting online platforms to record notes.

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This has to stop. While we may not understand the extent of this hidden problem, there are measures that can be taken to alleviate pressure on healthcare services and improve outcomes for individuals with leg ulcers.

In the authors' opinion, here are just some examples of policies that can be put in place:

- From the outset, staff should ensure that an appropriately tailored discussion with the patient (and their family) has taken place, so that the patient can be involved in their care decisions. This should cover the wound itself, the possible treatment options, the risks and the possible wound progression. If patients know what to expect during wound progression and treatment, making them better prepared at the start of their treatment journey, they will find the process less traumatic. Patients have the right to know the benefits, risks and side-effects of their wound treatments and to participate in the development of a treatment plan with their wound team
- Patients should be given access to their own medical records, including laboratory/pathology findings to encourage transparency, and for nurses to explain issues that they are unsure about. Family members should be able to get involved in care where suitable and feel that there is space to discuss healing choices and risks
- Technology is a solution that can strengthen the relationship between patient and staff because efficient communication reduces confusion. Using a smartphone or an app improves patient access to data, reducing the need for regular clinic visits. Healthcare providers need to ensure that staff have sufficient time allocated and consider modern technology to assist clinicians in offering adequate and timely appointments
- Consistency of care should be provided across the nation, to make sure that patients have access right across the full range of options, from centres of innovation to social hubs where they can share their experiences with others.

Of course, that is not to say that there is not fantastic work being done by dedicated professionals all over the country. We just want to make it consistent. And fair.

Enough is enough. We all need to act now and shine a light on this hidden epidemic, and we are going to start by talking to our Members of Parliament. Members of Parliament, together with the FINN Partners Health Team and Ellie Lindsay OBE will hold a parliamentary reception in April to raise awareness about leg ulcers among MPs. A comprehensive manifesto calling for action will be launched at this event. **JCN**

More information

To find out more, please email: julian.tyndale-biscoe@finnpartners.com

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Understanding health inequalities in sickle cell disease

This article was written by Dr Nizamul Islam, Medical Director of Rare Diseases at Pfizer UK

Sickle cell disease (SCD) is a debilitating, lifelong condition which places significant societal and economic burden on patients, caregivers and healthcare systems; the realities of living with SCD for both patients and caregivers significantly impact quality of life, and include mental health issues, as well affecting ability to attend and be successful at school or work, therefore reducing earning potential (Sickle Cell Health Awareness, Perspectives and Experiences (SHAPE) survey, 2022).

SCD affects approximately 15,000 people in the UK (Sickle Cell Society) who are primarily of African, Mediterranean, and South Asian descent (Centers for Disease Control and Prevention, 2023). It is an inherited blood disorder that impacts haemoglobin, a protein carried by red blood cells (RBCs) that delivers oxygen to tissues and organs throughout the body (National Heart, Lung, and Blood Institute).

Due to a genetic mutation, individuals with SCD form abnormal haemoglobin known as sickle haemoglobin. This causes RBCs to lose their flexibility and become rigid, sticky and crescent or sickle shaped. The recurrent sickling process results in the breakdown of RBCs (haemolysis), blockages in capillaries and small blood vessels and haemolytic anaemia (low haemoglobin and low oxygen delivery in the body due to RBC destruction). The diminished oxygen delivery to tissues and organs leads to life-threatening complications and morbidities, including irreversible damage to major organs such as the liver, kidneys, lungs and heart — which contribute to decreased quality of life and early death (Rees et al, 2010; Caboot and Allen, 2014; Kato et al, 2017; Kato et al 2018; Nader et al, 2020).

> **'The economic disadvantages and health inequalities experienced by many patients with SCD can have negative societal impacts in areas such as access to health care, education and employment.'**

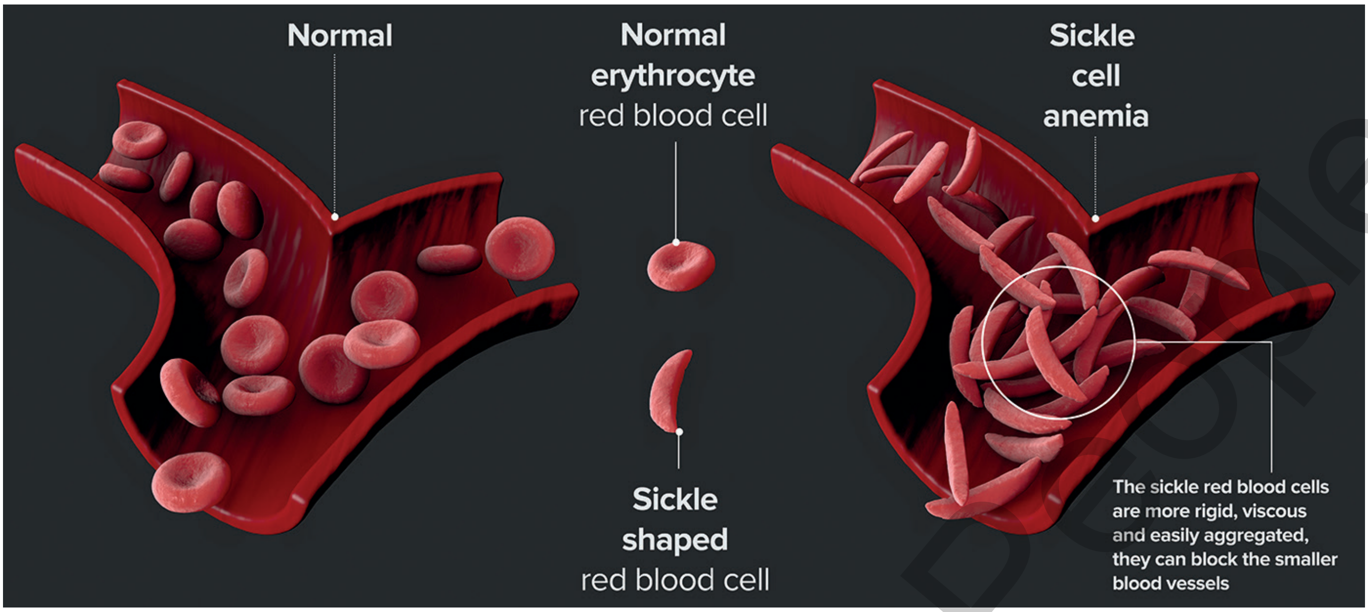
The 'No One's Listening report' issued by the All-Party Parliamentary Group on Sickle Cell and Thalassaemia in partnership with the Sickle Cell Society, sought to examine the level of care patients with SCD receive when accessing secondary care and to determine the action that is required to improve care for patients. The report found inadequate levels of training and low awareness of SCD among healthcare professionals. It also uncovered inadequate investment in SCD and sub-optimal care in general wards and in A&E, as well as negative attitudes towards patients with SCD (Sickle Cell Society and All-Party Parliamentary Group, 2022). The report called for positive change, including mandatory training on SCD for nurses and guidelines to be developed to support healthcare professionals working in A&E and general wards.

BEYOND THE PHYSICAL

The Sickle Cell Health Awareness, Perspectives and Experiences (SHAPE) survey was commissioned by Global Blood Therapeutics and conducted by Ipsos Healthcare. In total, 1,345 people from 10 countries, participated in the survey. SHAPE findings highlight the significant impact of SCD on everyday life for UK patients, including fatigue, pain and mental health problems, in addition to impacting their ability to attend and be successful at school or work, and, therefore, reducing their earning potential (SHAPE, 2022). The survey showed that UK patients miss the equivalent of over three months of work or school every year due to living with SCD and the impact of the disease also extends to caregivers of those living with SCD, significantly affecting many aspects of their lives (SHAPE, 2022).

SHAPE (2022) also highlighted the complex environment healthcare professionals face when treating people living with SCD. The results suggest a need for more education and tools to address the long-term impact of the disease and underpin the need for improved overall awareness and understanding of SCD.

Despite being discovered over 110 years ago, SCD continues to be overlooked. The economic disadvantages and health inequalities experienced by many patients with SCD can have negative societal impacts in areas such as access to health care, education and employment (Anie et al, 2002; McClish et al 2005; Dampier et al, 2010; Daniel et al, 2015; Dampier et al, 2011; Kambasu et al, 2019; Lubeck et al, 2019).



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A recent UK study of 9,272 UK patients (aged >12 years) was the first to show empirical estimates for productivity-loss and loss of future income for patients with SCD. It demonstrated that routine healthcare appointments, acute crises and organ damage combine to result in productivity loss, and estimated that those who cannot work or die of their disease lost more than £500,000 of potential future income over their lifetime (Besser et al, 2022).

It is important that we work towards increasing understanding of this debilitating disease in the UK so we can improve quality of life for both patients and caregivers. Nurses play a pivotal role in helping to support SCD patients; they are able to engage with patients to better understand the impact of SCD on patients' mental and emotional health. By working closely with patients, their carers and allied healthcare professionals, nurses are critical in helping to improve outcomes. **JCN**

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This JCN clinical skills series provides a guide to the causes, assessment, categorisation and prevention and management of pressure ulcers.

Part 1: Do risk assessments prevent pressure ulcers?

This article, the first in a series on pressure ulcer prevention and management, looks at undertaking risk assessment as the first step in preventing pressure damage. It discusses the most popular tools in clinical practice, as well as how reliable they are in predicting patient risk. Legal aspects of pressure ulcer risk assessment documentation are also explored, together with future developments in producing a risk assessment tool which can be used across all clinical settings in primary and secondary care.

Pressure ulcers are areas of localised injury to the skin and underlying tissue, usually over a bony part of the body such as the hip or heel. These ulcers develop as a result of pressure, or pressure in combination with shear forces (squeezing and stretching soft tissues between bony structures and the skin). Pressure ulcers mainly occur in people who have limited mobility or nerve damage, such as older people, those with spinal injuries, or long-term hospital patients. Most pressure ulcers are largely preventable, therefore when they develop, the quality of care delivered can be questioned (Amir et al, 2017; Lavallée et al, 2019).

A point prevalence survey of complex wounds (e.g. pressure ulcers, leg ulcers) conducted in a northern UK city in 2014 found pressure ulcers to be the most prevalent complex wound reported (0.31 per 1,000 people) (Hall et al, 2014), and 26% of individuals with a pressure ulcer lived in residential or nursing homes. Risk factors include advancing age, immobility and illness, and, as a result, many nursing home and community patients are at high risk (Coleman et al, 2013; Chiari et al, 2017). Pressure ulcer risk assessment is part of the process used to identify individuals at risk of developing a pressure ulcer (Moore and Patton, 2019).

'Pressure ulcers mainly occur in people who have limited mobility or nerve damage, such as older people, people with spinal injuries, or long-term hospital patients.'

PRESSURE ULCER RISK ASSESSMENT (PURA)

Pressure ulcer risk assessments (PURA) generally use checklists that alert practitioners to the most common risk factors that predispose individuals to pressure ulcer development (Moore and Patton, 2019). These checklists are then developed into risk assessment tools, for example the Norton scale (Norton et al, 1962), the Waterlow scale (Waterlow, 1985) and the Braden scale (Braden and Bergstrom, 1987). Gould et al (2002) argued that there is a lack of consensus regarding which variables are the strongest indicators of risk and whether clinical setting will impact on pressure ulcer risk. The risk assessment tool must be suitable to each clinical setting and as a result, there are almost 40 risk assessments in use, most of which are based on the seminal work of Norton (1962), or have been developed as a result of literature reviews (Moore and Patton, 2019).

Many international guidelines recommend the use of a risk assessment tool to prevent pressure ulceration. The National Institute for Health and Care Excellence (NICE, 2014) states:

> *Carry out and document an assessment of pressure ulcer risk for adults: — being admitted to secondary care or care homes in which NHS care is provided or — receiving NHS care in other settings (such as primary and community care and emergency departments) if they have a risk factor, for example: significantly limited mobility (for example, people with a spinal cord injury); significant loss of sensation; a previous or current*

Annemarie Brown, Lecturer, BSc Adult Nursing, School of Health and Human Sciences, University of Essex

pressure ulcer; nutritional deficiency; the inability to reposition themselves or significant cognitive impairment.

For community patients, a pressure ulcer risk assessment is usually undertaken at the initial assessment, whereas this assessment is generally undertaken as part of the admissions procedure to hospital.

The National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance (NPUAP/EPUAP/PPPIA, 2019) recommend: 'Conduct a structured risk assessment as soon as possible (but within a maximum of eight hours after admission) to identify individuals at risk of developing pressure ulcers'. Although this recommendation is only supported by indirect evidence (e.g. studies in healthy humans, humans with other types of chronic wounds, animal models) and/or expert opinion, they suggest it is a robust recommendation and should definitely be done (N PUAP/EPUAP/PPPIA, 2019).

DIFFERENT RISK ASSESSMENT TOOLS IN CLINICAL PRACTICE

As said, the most widely used risk assessment scales are the Braden (Braden and Bergstrom, 1987), Norton (Norton et al, 1962), and Waterlow scales (Waterlow, 1985). The ability of a PURA to identify risk accurately depends on issues, such as:

- Construct validity
- Reliability
- Specificity
- Sensitivity
- Positive and negative predictive values

(Kottner and Balzer, 2010).

These are explained in *Table 1*.

Table 1: Risk assessment research terms explained

Term	Explanation
Construct validity	▸ The purpose of construct validation is to evaluate whether scores on a set of items form a suitable indicator for the intended construct. In this case, will the scale demonstrate whether a patient is at risk of pressure damage?
Reliability	▸ Reliability refers to the consistency of the measurement. Reliability shows how trustworthy is the score of the test. If the collected data shows the same results after being tested using various methods and sample groups, the information is reliable. For example, If you weigh yourself on a weighing scale at exactly the same time every day, you should get the same result if the scale is reliable
Specificity	▸ This is the percentage of persons without the disease who are correctly excluded by the test
Sensitivity	▸ This is the percentage of persons with the disease who are correctly identified by the test
Positive predictive value (PPV)	▸ The positive predictive value (PPV) tells you how likely it is for someone who has a high score or pressure ulcer risk to actually develop pressure damage
Negative predictive value	▸ The negative predictive value is the probability that patients who have low risk scores will not develop pressure damage

Waterlow scale (Waterlow, 1985)

This was developed in 1985 by Judy Waterlow, a clinical nurse teacher, and is commonly used today. It covers seven known risk factors for the development of pressure ulceration and the total scores achieved within each factor are summed to derive the Waterlow score, with higher scores believed to mark greater vulnerability (Waterlow, 1985). A score of more than 10 is classified as at risk, between 15 to 20 as high risk, and more than 20 as very high risk.

Pang and Wong (1998) compared the predictive power of the three most commonly adopted pressure ulcer risk calculators: Norton, Braden, and Waterlow scales. One hundred and six patients free of pressure ulcers at admission were assessed using the three scales by independent assessors within 48 hours of admission, followed by a daily monitoring of skin condition for at least 14 days to detect any pressure ulcer that developed. They concluded that the Waterlow scale did not have clear descriptions and instructions for the scale items and, as a result, the scale depended on the assessor's judgement. Kelly (2005) found lack of reliability of the Waterlow scale results due to different perceptions of patients by the nurses, and that the latter were not using the scale for the purpose it was intended.

The inclusion of such a wide variety of risk factors enables the Waterlow scale to cover an extensive range of patients and there is a danger that it will over predict the risk of an individual, making its use complex (Charalambous et al, 2018). In addition, some of the factors included in the Waterlow scale, such as gender and medication, have not been found to be significant in the development of PUs (Coleman et al, 2013). According to Charalambous et al (2018) the predictive validity of Waterlow is also limited because it does not allow for the application of preventative measures. This fact, and the need to adjust for age/gender/medication means it should be used only in combination with clinical judgement. Charalambous et al (2018) state that the predictive validity of the Waterlow is characterised by high specificity and low sensitivity. The inter-rater reliability has been demonstrated to be inadequate (Charalambous et al, 2018), which may be due to lack of clear definitions within the categories and differentiating level of knowledge between users, concurring with Kelly's view in 2005. Charalambous et al (2018) concluded that due to the limitations presented regarding the validity and reliability of the Waterlow pressure ulcer risk assessment scale, the scale should be used in conjunction with clinical assessment to provide optimum results.

Norton scale (Norton et al, 1962)

Pang and Wong (1998) concluded that both the Norton and Waterlow scales had relatively high sensitivity (81% and 95%, respectively), whereas the Braden scale had both high sensitivity (91%) and specificity (62%). All three scales had relatively high negative predictive values (>90%), but the Braden scale had better positive predictive value. Pang and Wong (1998) concluded that the Braden scale is more suitable for use in a rehabilitation hospital.

Braden scale (Braden and Bergstrom, 1987)

A meta-analysis in 2007 found that the Braden scale offers the best balance between sensitivity and specificity and the best risk estimate, and that it is more accurate than nurses' clinical judgment in predicting pressure ulcer risk (Papanikolau et al, 2007). The Braden scale evaluates the risk of skin breakdown in six domains: sensory perception, moisture, activity, mobility, nutrition, and friction and shear (He et al, 2012). It was developed more than 20 years ago for patients in acute and long-term care settings. The validity and reliability of the Braden scale for pressure ulcer development has been established in a variety of patient care settings, but studies suggest the scale does not capture risk factors in surgical patients (He et al, 2012).

Pancorbo-Hidalgo et al (2006) presented pooled sensitivity and specificity estimates for the most investigated instruments and concluded that the Braden scale shows optimal validation and has the best balance between sensitivity (57.1%) and specificity (67.5%), as compared to the Norton and Waterlow scales. Pancorbo-Hidalgo et al (2006: 105) further suggest that: 'due to the influence of PU preventive measures, nearly all obtained sensitivity and specificity estimates in PU risk scale research are biased. Applied preventive interventions decrease the probability of PU development, and sensitivity and specificity as well. One can also put it the other way round. High sensitivities and specificities can only be reached if a study has been conducted in a healthcare institution that does not use effective preventive interventions. This may be feasible but is clearly undesirable'.

Pressure ulcer risk primary or secondary evaluation tool (PURPOSE T)

More recently, work has been undertaken to develop a new risk assessment tool combining:

- A systematic review
- A consensus study
- Conceptual framework development
- Pre-test study
- Clinical evaluation

(Coleman et al, 2018).

A field test using a sample of 230 community and hospital patients across four risk levels was conducted, but excluded obstetric, paediatric, day case surgery or psychiatric settings (Coleman et al, 2018). Two hundred and thirty patients were purposively sampled ensuring a similar number of hospital and community patients and representation of patients. The sample comprised 25% of patients assessed as 'not at risk' and 75% assessed as 'at risk'. These were composed of those without mobility restriction (i.e. low risk), those with some mobility/ activity limitations (i.e. at risk), those who were bedfast/chairfast (i.e. high risk), and those with an existing PU category 1 or above.

The preliminary PURPOSE-T incorporated instructions to support nurse decision-making facilitated by the use of colour to weight risk factor items (Coleman et al, 2018). According to the researchers, this was based on the overall strength of epidemiological evidence and/or wider scientific evidence, its clinical resonance, and its role in the PU causal pathway (Coleman et al, 2013; Coleman et al, 2014).

In PURPOSE-T:

- Blue indicates no problem
- Yellow indicates a potential impact on PU risk
- Orange indicates risk
- Pink indicates the patient has a PU or scar from a previous PU

(Fletcher, 2023).

This colour code is integrated throughout the three-step assessment process:

- Step 1 is the screening assessment
- Step 2 full assessment
- Step 3 requires consideration of step 2 responses to inform 1 of 3 assessment decisions, comprising:
    - 'No PU not currently at risk' for those with only yellow or blue items ticked
    - 'No PU but at risk' for those with any orange (but no pink items) ticked, or if yellow/blue boxes are ticked and the nurse assesses the patient to be at risk based on their overall risk profile
    - 'PU category 1 or above or scarring from previous PU' for those with any pink items ticked

(Coleman et al, 2018).

The level of 'training' in PURPOSE-T used a 'train the trainer' model in that expert nurses, trained by the researcher, cascaded training to local nurses. However, the researchers caution that the focused training of the experts and their direct access to the PURPOSE-T development team may mean that the achieved level of competence might not necessarily be replicated in routine clinical practice (Coleman et al, 2018).

The researchers concluded that the clinical evaluation of PURPOSE-T demonstrated the reliability, convergent validity and clinical usability of the instrument when used by expert and ward/ community nurses in secondary care and community settings. The findings emphasise the importance of including skin status in the assessment process to facilitate both primary and secondary prevention. The clinical evaluation aided refinement of the instrument and confirmed its suitability for use in clinical practice (Coleman et al, 2018). The final version of PURPOSE-T is available at: https://ctru.leeds.ac.uk/ purpose/purpose-t/.

DO PRESSURE ULCER RISK ASSESSMENTS AFFECT CLINICAL PRACTICE?

Moore and Patton (2019) undertook a systematic review to find out what effect the use of risk assessment tools has on the development of new pressure ulcers among people at risk. Many different PURA tools are used in clinical practice and it is not known which one is the best. Moore and Patton (2019) collected and analysed all relevant studies published up to February 2018 (randomised controlled trials) to answer this question and found two relevant studies. They concluded that they could not be certain whether the use of a risk assessment tool makes any difference to the prevention of pressure ulcers, compared with the use of clinical judgement, as the certainty of evidence ranged from low to very low. The results of the studies did not show differences in the number of pressure ulcers that developed among the participants, and one study did not show a difference in the severity of pressure ulcers that developed.

Parisod et al (2022) conducted a correlational, cross-sectional study to assess the pressure ulcer prevention attitudes of the nursing staff and to identify factors associated with it both in primary (n=20) and special health care (n=27) with 554 nursing staff in two hospital districts in Finland from 2018 to 2019. Nurses' attitudes were measured using an attitude towards pressure ulcer prevention instrument, demographic data, and a pressure ulcer prevention knowledge (PUPK) test (Parisod et al, 2022). The PUPK test consists of 35 items on seven different domains:

- PU development and risk factors
- PU classification
- PU risk assessment
- PU prevention with repositioning
- PU prevention with pressure relief devices
- Skin assessment and skin care
- Nutrition.

Each domain includes five items with 'yes', 'no', or 'I don't know', answer options. In addition, data on the characteristics of the participants (current nursing occupation, education, work experience, participation in PU training, self-evaluation of general PU prevention skills, and self-evaluation of additional training needs) were collected.

There was a low response rate of 28%, which the researchers were unable to explain. However, they surmised that the data collection process, which took over 20 minutes to complete, may have been a barrier to participating, due to workload pressures. The researchers concluded that more attention needs to be paid to develop positive attitudes among nurses towards pressure ulcer prevention, as attitudes can affect peoples' behaviour (Bohner and Dickel, 2011; Khojastehfar et al, 2020) and quality of care (Lugtenberg et al, 2009).

Kottner and Balzer (2010) produced an overview and discussion of pressure ulcer risk assessment scale research in response to the ongoing debate about the usefulness and benefit of using PU risk assessment scales in clinical practice. They point out, however, that although existing PU scales have been criticised for their poor psychometric properties and inability to improve patient outcomes, undertaking a PURA is still recommended in national and international guidelines (NICE, 2014; NPUAP/EPUAP/PPPIA, 2019).

Kottner and Balzer (2010) conclude that irrespective of their study results, the main goal of PU risk scales is to predict who will develop PUs for the purpose of planning effective prevention strategies. The main benefit lies in the scale acting as a reminder to nurses about the possibility of pressure damage developing and raising awareness for practitioners (Kottner and Balzer, 2010).

Moore and Patton (2019) concluded that assessing the reliability and validity of risk assessment scales is problematic in clinical practice, as it would require using a PURA tool to predict which patients are at risk of developing pressure damage and then not putting any interventions in place to see whether the patient actually did. This, of course, would be unethical practice and a breach of duty. Furthermore, a healthcare setting-specific tool is required due to differing populations, for example, a nursing home setting versus a labour ward (Moore and Patton, 2019).

Moore and Patton (2019) further suggest that the use of PURA tools, without knowledge of the sensitivity and specificity of the tool, can have far-reaching implications, in that clinical decisions, such as the provision or not of pressure prevention strategies are based on the score calculated, which has resource implications. Anthony et al (2008) argue that nurses often use their clinical judgement alone in deciding which preventative measures to use. As a result, it is likely that some patients are receiving interventions that they do not require, and conversely, others are not receiving interventions that they would benefit from (Defloor and Grypdonck, 2005).

PERSPECTIVES OF A TISSUE VIABILITY MEDICO-LEGAL EXPERT

As a medico-legal expert nurse in the field of tissue viability, the overwhelming majority of cases referred to the author concern the development of pressure damage in both primary and secondary care. This role entails examining all the medical/nursing records to determine if there was a breach of duty and whether harm resulted from this breach (Brown, 2022). The benchmark for recognising good care, in terms of pressure ulcer prevention, include contemporaneous national and international guidelines, such as NICE (2014) and NPUAP/EPUAP/PPPIA (2019). These 'recommend a risk assessment is conducted as soon as possible (but within a maximum of eight hours after admission)' (NPUAP/EPUAP/PPPIA, 2019: 4–14). NICE (2014) recommendation is to 'carry out and document an assessment of pressure ulcer risk for adults' but also 'Consider using a validated scale to support clinical judgement when assessing pressure ulcer risk' (NICE, 2014: 12).

These are only recommendations, not mandatory, but reflect best practice. Therefore, failure itself not to document a Waterlow/Norton/Braden score would not be considered a breach of duty. However, all healthcare professionals have a moral and professional responsibility to use their clinical judgement to identify which patients they consider to be at risk of pressure damage and put strategies in place to prevent them. Most trust documentation includes a validated PURA tool to comply with guidelines. However, in the author's experience, these tend to just be a 'tick box' exercise, often with the score miscalculated. Furthermore, often there is evidence of 'block-recording', where the score is simply replicated from the previous one, irrespective of any changes in the patient's medical or clinical condition.

A common error is to award a score of 4–6 for a patient with diabetes on the Waterlow risk assessment. However, this score should only be given if the patient has neurological deficit resulting from diabetes, such as neuropathy of the feet, and therefore appears in the 'special risks' section of the tool. A patient with well-controlled diabetes and no neurological deficit to their lower extremities would not be at increased risk. By adding 4–6 points to the score unnecessarily, the patient's risk could be erroneously over-estimated and may result in the allocation of valuable pressure-relieving equipment which is not necessary. As a result, NHS Resolution, who manage litigation claims on behalf of NHS trusts, noted that some of the terminology of the Waterlow tool was subjective and confusing and could result in incomplete or inaccurate risk assessments (Kelly, 2005; Charalambous et al, 2018; NHS Resolution, 2021).

From a legal perspective, documentation is of utmost importance as, in Court, it is argued 'what was not documented, was not done' (Kottner and Balzer, 2010). However, as a medico-legal expert, block recording of scores would be highlighted as evidence of poor practice in a legal report.

CONCLUSION

Assessing a patient's risk of developing pressure damage is a moral and nursing duty and most trusts therefore incorporate a PURA tool in their documentation. Unfortunately, despite having 40 different tools in use (Kottner and Balzer, 2010), the variety of clinical settings and patient population means that no one tool fits all. Some of the seminal tools, such as the Waterlow, Braden or Norton, are outmoded, based on literature reviews and have been found to have poor predictive values. This has been acknowledged and researchers are now developing tools which can be used across both primary and selected clinical areas in secondary care, which are being developed from contemporaneous literature on risk factors, together with evaluation in clinical practice with patients and clinicians. Until these are widely available in clinical practice, the existing tools will still be used. Practitioners need to be aware of the failings and use them judiciously as an adjunct to clinical judgement, rather than just as a tick box exercise.

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Revalidation Alert

Having read this article, reflect on:

- The pressure ulcer risk assessment tools you use
- Your knowledge of the different tools in practice
- Why there is a need to use PURA tools judiciously as an adjunct to clinical judgement
- Some of your cases and the documentation recorded.

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

KEY POINTS

- Pressure ulcers are areas of localised injury to the skin and underlying tissue, usually over a bony part of the body such as the hip or heel.
- Most pressure ulcers are largely preventable, therefore when they develop, the quality of care delivered can be questioned.
- Risk factors include advancing age, immobility and illness, and, as a result, many nursing home and community patients are at high risk.
- Pressure ulcer risk assessment is part of the process used to identify individuals at risk of developing a pressure ulcer.
- Pressure ulcer risk assessments (PURA) generally use checklists that alert practitioners to the most common risk factors.
- Many international guidelines recommend the use of a risk assessment tool to prevent pressure ulceration.
- The most widely used risk assessment scales are the Braden, Norton, and Waterlow scales.
- However, some of the seminal tools, such as the Waterlow, Braden or Norton, are outmoded, based on literature reviews and have been found to have poor predictive values.
- Researchers are now developing tools which can be used across both primary and selected clinical areas in secondary care, which are being developed from contemporaneous literature on risk factors, together with evaluation in clinical practice with patients and clinicians.

Differentiating between cellulitis/ erysipelas and alternative causes of ‘red legs’

Annemarie Brown

When patients present with red lower legs, the cause is often assumed to be cellulitis or erysipelas. There are, however, several alternative conditions which mimic the clinical signs of cellulitis or erysipelas, which can lead to misdiagnosis. It is important that the cause is correctly diagnosed to prevent inappropriate prescribing of antibiotics. This article discusses the different potential causes of ‘red legs’, in addition to cellulitis and erysipelas, together with clinical signs and symptoms to enable community nurses to differentiate between them and implement appropriate treatments. Systemic antibiotics may not be the most appropriate management, and with the current focus on reducing antibiotic usage, community nurses need to be confident that they are prescribing them appropriately and safely, and only when required.

KEYWORDS:
■ Cellulitis ■ Erysipelas ■ ‘Red legs’ ■ Risk factors
■ Diagnosis and treatment

When faced with a patient with a red lower limb, there is a tendency for some healthcare professionals to assume that this is cellulitis and erysipelas. However, this may be a misdiagnosis, as other chronic conditions, such as acute venous insufficiency, lymphoedema, non-specific oedema, contact dermatitis, or cardiac failure, have similar signs and symptoms (Santer et al, 2018) (*Table 1*). It is essential to form a differential diagnosis to ensure that correct treatment is implemented to prevent a potentially life-threatening condition developing, such as sepsis or necrotising fasciitis.

WHAT IS THE DIFFERENCE BETWEEN CELLULITIS AND ERYSIPELAS?

Cellulitis is a deep, soft tissue infection, caused by gram-negative and -positive bacteria, haemolytic streptococci, staphylococci, aerobic or anaerobic gram-negative bacteria (Beldon and Burton, 2005). Microorganisms invade the host’s immune system, generally through a breach in the skin and, once established, they multiply rapidly and the patient may initially display a superficial infection of the dermal tissues — erysipelas — causing areas of painful blistering (Beldon and Burton, 2005).

Cellulitis generally has an acute onset and patients exhibit generalised symptoms, such as fever, rigors, nausea and vomiting (Cranendonk et al, 2017). Unfortunately, some patients develop sepsis, gangrene or necrotising fasciitis, however the majority are not severely ill and recover uneventfully (Eriksson, 1996). Between 25 and 46% of people admitted to hospital may have recurrent episodes of cellulitis (Cox, 1998; Jorup-Rönström and Britton, 1987; Pavlotsky et al, 2004).

Erysipelas is an acute infection which develops in the superficial skin layers and is characterised initially by malaise, shivering and a fever (Weller et al, 2015). Later, the affected areas become red with

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Table 1: Differentiating between the causes of red lower limbs (adapted from Cranendonk et al, 2017)

Condition	Signs and symptoms
Allergic contact dermatitis	Area of erythema is confined to the contact area of allergen — can be caused by some moisturisers and skin preparations, for example, parabens, biocides, rubber and commonly colophony, which is an adhesive found in plasters and bandages
Erysipelas	Bacterial infection in the superficial layers of the skin. Usually caused by a breach in the skin. Margins of erythema are well demarcated, and blisters may occur. Treated with penicillin-based antibiotics
Lipodermatosclerosis	Chronic inflammation and fibrosis of the dermis and subcutaneous tissues. Haemosiderin deposition or staining is present and is a key clinical sign of venous disease. Acute and chronic but can mimic cellulitis in the acute phase. Usually bilateral due to venous insufficiency and unlikely to be cellulitis if bilateral. Can be accompanied by varicose veins and oedema. Champagne bottle-shaped legs together with red/brown staining
Gravitational (stasis, venous) eczema	Normally present in venous insufficiency and presents as a patchy eczematous condition of the lower limbs. Slow onset and there may be evidence of hyperpigmentation present, red, itchy scaley skin with blisters. Very superficial skin loss, but can become infected and develop into ulcers if not managed. May present in combination with lipodermatosclerosis
Cellulitis	Inflammation within the deeper levels of the skin. May be caused by trauma or an injury as a result of streptococci, staphylococci or other organisms. Treatment is elevation, may require hospitalisation and intravenous (IV) antibiotics. The subcutaneous tissues are involved, and the area is red and swollen, although the margins are not as demarcated as erysipelas

Figure 1.
Cellulitis in patient with lymphoedema.

a well-defined margin and blisters may develop on the red plaques. Erysipelas commonly results from a split in the skin, such as between the toes or the earlobes, and toe web intertrigo and lymphoedema are risk factors. Unfortunately, erysipelas recurs in up to 20% of patients and frequent bouts can predispose patients to persistent lymphoedema (Weller et al, 2015). Left untreated, this can develop into a serious condition (i.e. cellulitis), depending on the location. However, as it is primarily caused by streptococci, it responds rapidly with systemic penicillin, often given intravenously.

Although, in theory, erysipelas tends to affect the superficial skin tissues and cellulitis the deeper, this is not always the case, meaning it can be impossible to distinguish between the two (Kilburn et al, 2010). Cellulitis and erysipelas rarely occur simultaneously in both legs and if the redness is bilateral, it is more likely to be as a result of another condition, such as contact dermatitis or varicose eczema.

Historically, erysipelas was distinguished from cellulitis using wound cultures, as it was assumed that streptococcal infection of the superficial dermis was the causative bacteria, whereas staphylococcal infection was the causative bacteria in cellulitis (Cranendonk et al, 2017). Studies have found that this is no longer the case, and both types of bacteria have been isolated in cases of both erysipelas and cellulitis (Cranendonk et al, 2017). The signs and symptoms of both conditions are very similar, and it is difficult to differentiate between them clinically. As a result, treatment and management of both are grouped together as soft tissue infections (National Institute for Health and Care Excellence [NICE], 2019).

CAUSES AND RISK FACTORS FOR CELLULITIS AND ERYSIPELAS

Cases of cellulitis and erysipelas are frequently associated with a history of trauma, such as abrasions, insect bites or lacerations (El-Daher and Magnussen, 1996). However, conditions such as lymphoedema (*Figure 1*), obesity and venous leg ulceration, increase the risk of erysipelas and cellulitis (Beldon and Burton, 2005; Weller et al, 2015).

Lymphoedema increases the risk as impaired lymphatic drainage provides a static pool of protein-rich lymph, which is an excellent medium for bacterial growth (Beldon and Burton, 2005).

There are multiple physical barriers and active protective mechanisms which fend off invasion of bacteria in the skin (Cranendonk et al, 2017). Intact, well perfused skin will prevent infection, however, there are risk factors, such as old age, diabetes and obesity which may affect the immunity, circulation and integrity of the skin and pose a relatively high risk of cellulitis. These three risk factors are often present in patients admitted to hospital with cellulitis. However, Cranendonk et al (2017) have suggested that a previous history of cellulitis is the biggest risk factor.

Ageing skin is associated with atrophy, often combined with poor circulation, a less efficient immune system, together with comorbidities such as diabetes or congestive cardiac failure (Cranendonk et al, 2017). Furthermore, if the patient is malnourished, there may be impaired wound healing, decreased skin elasticity and integrity (Kish et al, 2010).

Lipsky et al (2010) found that hospital admission rates for cellulitis are higher in patients with diabetes, often as a result of diabetic foot-associated problems, although more than a quarter of patients with diabetes admitted to hospital with cellulitis had developed this on non-foot locations (Lipsky et al, 2010).

Practice point

Misdiagnosis of cellulitis can be costly in terms of unnecessary hospital admissions for patients who could be managed at home.

In patients who are morbidly obese, the skin is more susceptible to damage and may also take longer to repair (Yosipovitch et al, 2007). Indeed, it has been suggested that obesity causes changes in skin barrier function, the lymph system, collagen structure and function, and wound healing. The evidence also suggests that the vascular and macro and microcirculation may be impaired in obese patients (Huttunen and Syrjanen, 2013).

In addition, adipose tissue contains adipokine, which impairs the inflammatory response and obese patients tend to have dry skin, and impaired skin barrier and lymphatic flow (Cheong et al 2019), all of which increase the risk of skin infections.

Seasonal variations have also been observed, with streptococcal skin infections occurring more frequently in the winter months in cold climates and higher erysipelas rates in the summer in warmer countries (Pereira de Godoy et al, 2010).

DIAGNOSING CELLULITIS AND ERYSIPELAS

The classic clinical signs of cellulitis and erysipelas are:

- Erythema
- Oedema
- Warmth
- Tenderness (Atzori et al, 2013).

However, these are relatively non-specific and can vary in severity. As a result, Cranendonk et al (2017) suggest that redness does not necessarily indicate cellulitis and discuss several studies which revealed that 31% of patients hospitalised in the Netherlands with suspected cellulitis were misdiagnosed (Levell et al, 2011; Weng et al, 2017). Furthermore, they found that when clinicians referred patients to dermatologists due to an uncertain diagnosis of cellulitis, 74% of patients were found not to have the condition (Strazzula et al, 2015).

Kilburn et al (2010) conducted a Cochrane review on interventions for cellulitis and erysipelas and, for the purpose of the review, grouped cellulitis and erysipelas together as one condition, as the literature did not distinguish between the two. They found that microbiological studies, using classic blood cultures and swabs from skin lesions, only proved positive in one quarter of patients admitted to hospital. More advanced testing methods detected beta haemolytic streptococci (usually group A or G) as the most prominent bacteria, accounting for almost 80% of organisms isolated (Kilburn et al, 2010). They concluded that *Staphylococcus aureus* probably did not cause erysipelas, but may sometimes cause cellulitis (Eriksson, 1996). Enterococci was occasionally isolated in leg ulcers in combination with gram-negative bacteria and/or *S. aureus* (Eriksson, 1996).

TREATMENT FOR CELLULITIS OR ERYSIPELAS

National Institute for Health and Care Excellence (NICE, 2019) guidance on managing cellulitis and erysipelas recommends excluding other causes of skin redness, such as an inflammatory reaction to an insect bite, or other conditions, such as chronic venous insufficiency, eczema or oedema. Furthermore, it recommends taking a microbiological swab only if the skin is broken and there is a penetrating injury, exposure to water-borne organisms, or if the infection was acquired outside the United Kingdom. *Figures 2–5* show contact dermatitis, venous eczema, erysipelas and cellulitis.

It is recommended to draw around the extent of the redness with a single-use marker pen to monitor how it progresses before starting antibiotic therapy, but remember that the redness may be difficult

Figure 2.
Contact dermatitis.

Figure 3.
Acute varicose eczema.

Figure 4.
Erysipelas.

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Figure 5.
Cellulitis.

Figure 6.
Contact dermatitis and maceration due to inadequate exudate management.

to visualise in darker skin tones (NICE, 2019). People with cellulitis or erysipelas should then be offered antibiotics. However, healthcare professionals need to consider the site of the infection, severity of symptoms, risk of uncommon pathogens, for example from a penetrating injury, microbiological swab results and the patient's meticillin-resistant *Staphylococcus aureus* (MRSA) status if known before prescribing (NICE, 2019).

NICE guidance also recommends use of oral antibiotics as first-line treatment if the cellulitis and erysipelas are not severe and, in the case of intravenous (IV) antibiotics, to review the patient's condition within 48 hours and revert to oral administration if there is evidence of improvement. NICE (2019) gives an extensive list of suitable antibiotics and practitioners are advised to consult their local trust formulary for guidance on which is the preferred type.

If symptoms worsen and the patient becomes systemically unwell, with increased pain out of proportion to the infection, or there is no sign of improvement after two to three days, it is recommended that healthcare professionals consider if there is another serious underlying condition, such as osteomyelitis, septic arthritis, necrotising fasciitis or sepsis (NICE, 2019). If a microbiological swab has not been taken, this should be done now, and the patient should be changed to a narrow spectrum antibiotic (NICE, 2019).

Santer et al (2018) note, however, that although cellulitis is usually treated with a one-week course of antibiotics, such as flucloxacillin, dependent on severity, comorbidity and site of infection, in many cases it does not resolve after one week and patients often receive repeated doses of antibiotics. They suggest that this may be unnecessary as the persisting redness can be due to inflammation, rather than active infection.

Santer et al (2020) also suggest that there is little evidence to guide the route of administration and that oral antibiotics appear to be just as effective as the IV route. As a result, they question the NICE Clinical Knowledge Summary guidelines, which recommend that patients with cellulitis, who are systemically unwell or who have diabetes, obesity, peripheral vascular disease, or chronic venous insufficiency, should be referred for either admission or IV antibiotics. Santer et al (2020) conclude that this advice is based on opinion rather than clinical evidence and that the majority of patients, with the exception of the systemically unwell, could be managed at home.

This lack of guidance on prescribing antibiotics in cellulitis and erysipelas has also been highlighted by Bishop et al (2021) and Kilburn et al (2010). Beldon and Burton (2005) have produced a helpful algorithm for the management of limb cellulitis in primary and secondary care.

NICE (2019) does not recommend the routine use of prophylactic antibiotics to prevent future infections. However, the British Lymphology Society (BLS) guidelines recommend that patients with lymphoedema, who have had an attack of cellulitis, carry a two-week supply of antibiotics with them, particularly when away from home for any length of time, e.g. on holiday. Amoxicillin 500mg tds is recommended or, for those allergic to penicillin, erythromycin 500mg qds or clarithromycin 500mg bd (BLS, 2016).

Tissue viability management of 'red legs'

As said, clinical signs of erysipelas/cellulitis can mimic other conditions, such as allergic contact dermatitis which is caused by exposure to an allergen or irritant substance that has damaged the normal barrier function of the skin (Beldon and Burton, 2005).

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Foot

Leg Circumference (5cm above ankle bone)	Model	PIP Code
20 – 25cm (8-10")	MP20 Small	**416-6476**
23 – 34cm (9-13")	MP25 Medium to Large	**416-6484**

Half Leg

Patient Height	Patient Weight	Model	PIP Code
5'5" (165 cm) and above	Up to 10 Stone (64kg)	MP76 Slim Leg	**333-7581**
	10 - 16 Stone (64 - 102kg)	MP80 Average Build	**320-0045**
	16 - 22 Stone (102 - 140kg)	MP180 Large Leg	**320-0060**
Under 5'5" (165cm)	Up to 10 Stone (64kg)	MP76S Slim Leg Short	**333-7599**
	10 - 16 Stone (64 - 102kg)	MP80S Short Leg	**320-0052**
	16 - 22 Stone (102 - 140kg)	MP180S Large Leg Short	**320-0078**

Elbow

LimbO Model	Upper Arm Circumference	PIP Code
M45	22 – 25cm	**N/A***
MP65	25 – 29cm	**386-4303**
MP75	30 – 39cm	**386-4311**
M85	39 – 54cm	**N/A***

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Clinically, these conditions will produce inflammation, oedema, pain, exudate, and blistering (English, 1997). In the case of venous disease, there may well be evidence of excessive keratin formation and thickening of the epidermis (Beldon and Burton, 2005). Patients with chronic venous leg ulcers may develop contact dermatitis as a result of long-term use of wound management products and the use of latex gloves (Tavadia et al, 2003). It is for this reason that latex gloves should be avoided.

If the patient has 'wet' cellulitis, venous eczema or contact dermatitis, the legs should be washed daily with a mild soap substitute, followed by moisturising with a bland emollient. Generic 50/50 liquid paraffin in soft white paraffin is the treatment of choice (Weller et al, 2015). Thirty minutes after applying an emollient, a potent steroid cream should be sparingly applied to the affected areas for a maximum of two weeks. If this does not resolve the skin's condition, a reduced strength steroid cream can be used (Weller et al, 2015).

Exudate management may require the use of alginates or Hydrofibers as primary dressings, with absorbent secondary dressings, for example, Zetuvit® (Hartmann) or Exu-dry® (Smith and Nephew). However, in the initial phase, dressings may need frequent changing to prevent maceration (Beldon and Burton, 2005). Alternatively, superabsorbent dressings, such as Cutimed Sorbion Sachet Extra® (Essity) or Eclypse® (Advancis Medical), can be used. Healthcare professionals should consult their local trust's dressing formulary for preferred choices.

If the patient is able to self-care, it may be more cost-effective to use a non-adherent contact layer, such as Adaptic™ (3M + KCI), Atrauman® (Hartmann) or Mepitel® (Mölnlycke), which can stay in place for several days, with the patient changing the outer dressing as required.

Potassium permanganate soaks are sometimes used as a weak antiseptic, however the effectiveness of these is debatable and there is no robust research evidence currently available to support their use. If using potassium permanganate, care must be taken to obtain the correct dilution of 1:10,000, as using a stronger solution may cause skin irritation (Beldon and Burton, 2005).

Cellulitis and erysipelas of the lower limbs are common conditions which are frequently misdiagnosed as they may mimic other conditions, such as varicose eczema or contact dermatitis.

Pain relief and elevation

Two main components of treatment for acute erysipelas/cellulitis and venous eczema are elevation and pain relief.

Cellulitis is a painful condition and without adequate pain relief, the patient will not tolerate elevation. Elevation will reduce oedema and patients should be encouraged to rest for periods during the day, with the affected limb raised on pillows if necessary (Beldon and Burton, 2005). It may also be possible to raise the foot of the bed.

However patients, particularly the elderly, still need to mobilise to use the toilet and prevent problems such as deep vein thrombosis (DVT) and a reduction in mobility (Beldon and Burton, 2005). Foot exercises, such as dorsiflexion, will also help to reduce oedema by using the calf muscle pump (Hofman, 1998). As the oedema subsides, patients should be warned that the skin may become wrinkled and slough away in sheets. Frequent application of emollients can help to prevent this from occurring.

Compression therapy

Atkin (2017) suggested that there is insufficient robust research evidence to support the use of compression to treat varicose eczema. However, compression will reduce oedema by improving lymphatic uptake by lessening the amount of lymph fluid in the legs. Application of compression stockings will also treat venous hypertension and therefore may slow down the development of skin changes responsible for venous eczema. Accordingly, NICE (2020) advises offering the use of compression hosiery in the long-term management of varicose eczema, where arterial insufficiency has been excluded.

In patients with limb cellulitis secondary to venous ulceration, it is commonly thought that compression therapy should be discontinued, as it is contraindicated in acute infection (Atkin, 2017). This is not the case and the decision to continue with compression should be based on individual patients and their ability to tolerate compression if the cellulitis is painful (Atkin, 2017; Cranendonk et al, 2017). If pain is well-controlled, there is no reason why compression should not be applied. If the patient is unable to tolerate compression, they should be encouraged to elevate their limb during the day.

CONCLUSION

Cellulitis and erysipelas of the lower limbs are common conditions which are frequently misdiagnosed as they may mimic other conditions, such as varicose eczema or contact dermatitis. As a result, patients may be hospitalised unnecessarily, while their care could have been managed successfully in the community.

Ensuring that only patients who require hospitalisation are admitted will reduce the number of hospital stays and free up beds for those that really need admission. Furthermore, being managed at home may be more convenient for the patient and their family.

This article has discussed the most common conditions that cause 'red legs', the differences between cellulitis and erysipelas to enable healthcare professionals to distinguish between them, together with an outline of treatment and nursing management. **JCN**

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KEY POINTS

- When patients present with red lower legs, the cause is often assumed to be cellulitis or erysipelas.
- There are several alternative conditions which can mimic the clinical signs of cellulitis and erysipelas.
- Cellulitis is a deep, soft tissue infection, caused by gram-negative and -positive bacteria, haemolytic streptococci, staphylococci, aerobic or anaerobic gram-negative bacteria.
- Erysipelas is an acute infection which develops in the superficial skin layers and is characterised initially by malaise, shivering and a fever.
- Cellulitis and erysipelas rarely occur simultaneously in both legs and if the redness is bilateral, it is more likely to be as a result of another condition.
- Two main components of treatment for acute erysipelas/cellulitis and venous eczema are elevation and pain relief.
- Systemic antibiotics may not be the most appropriate treatment, and with the focus on reducing antibiotic usage, community nurses need to be confident that they are prescribing them appropriately and safely, and only when required.
- Ensuring that only patients who require hospitalisation are admitted will reduce the number of hospital stays and free up beds for those that really need admission.

Integrated care bundle for the management of chronic wounds

Theresa Hurd, Julie Murdoch

The aim of this retrospective, real-world cohort analysis was to explore the clinical and financial benefits following the implementation of integrated care bundles (ICBs) within a real-world cohort of multiple wound types across two large community care facilities in Ontario, Canada. An observational, retrospective cohort analysis of the effectiveness and safety of a series of wound-specific ICBs, adopted to improve the management of open chronic wounds, was undertaken. Outcomes from patients who received a multi-layered, silicone adhesive foam dressing as part of their ICB were compared with outcomes from patients who did not receive the ICB. Patients who received the ICBs, including treatment with the foam dressing (n=16,841), experienced improved outcomes compared with those who did not receive the ICB (n=2242), including a faster time to healing (12.8 vs 25.5 weeks, respectively), and longer time between dressing changes (3.5 vs 1.9 days, respectively). Decreased mean nursing visits in the ICB cohort led directly to reduced resource costs, compared with mean per patient costs in the non-ICB cohort (CAD$1733 vs $6488, respectively). It was found that the reality of delivering evidence-based best practice that is optimally placed to deliver good outcomes can be challenging. However, the authors' experience suggests that the adoption of pathways and ICBs may make it easier to adopt best practice.

KEYWORDS:
■ Integrated care bundle ■ Chronic wounds ■ Community setting
■ Evidence-based best practice

Wound healing is a complex process that requires a sequence of events to occur in order. If a wound does not appear to be progressing through the normal wound healing trajectory in a predicted time period, it can be classified as chronic or non-healing (Frykberg and Banks, 2015). Delayed wound healing not only negatively impacts an individual's wellbeing and quality of life (Vogt et al, 2020), but can also be costly (Nussbaum et al, 2018; Guest et al, 2020). Chronic wounds in the United States (US) affect an estimated 8.2 million Medicare patients (Nussbaum et al, 2018), conservatively estimated to cost $28–32 billion per year. In the United Kingdom (UK), the total annual cost for management of wounds to the National Health Service has been estimated at £8.3 billion, of which £5.3 billion of these costs were disproportionately spent on the 30% of wounds that remained unhealed after one year (Guest et al, 2020). In Canada, the prevalence of compromised wounds is high in a number of clinical settings, including; home care (7.3% of all patients), long-term care (9.6%), and complex continuing care (28.2%) (Denny et al, 2014).

The longer a wound remains unhealed, the greater the risk of serious adverse events, such as infection (Lavery et al, 2006) which can lead to sepsis, or wound-related hospital admissions (White et al, 2015). The longer the wound persists, the greater the cumulative nursing time dedicated to treating and managing the wound (Guest et al, 2020). If chronic wounds, or those at risk of delayed healing are managed more efficiently, not only will patients benefit from better outcomes, but also the service provider will benefit from better use of finite resources (Adderley et al, 2017). This may potentially lead to reduced overall costs of care.

To maximise the chance of healing, research has established the importance of the principle of 'TIME' (tissue; infection, inflammation or biofilm; moisture balance; edge of wound), designed to encourage clinicians to set in place appropriate interventions to ensure the optimal wound bed for chronic wounds, according to the clinical needs of the specific patient and wound (Moore et al, 2019). This approach to wound management includes many different aspects, such as exudate management, infection treatment and prevention, patient concordance and efficient follow-up scheduling, which need to be managed simultaneously, considering multiple clinical and patient factors. The challenge to healthcare organisations is to ensure consistency of care to avoid variations in practice through implementing effective wound care pathways.

Indeed, one option that has emerged in the field of wound management over recent years is the integrated care bundle (ICB) approach (Clarkson, 2013). ICBs are designed to ensure evidence-based best practice in wound healing that, through addressing multiple

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clinically relevant factors, improves healing outcomes for patients with chronic wounds. Adoption of ICBs:

- Enables a standardised approach to wound management across an organisation (e.g. hospital or community wound clinic)
- Supports best practice based on the available evidence
- Facilitates identification of wounds that require escalation to specialist services

(Hurd et al, 2021).

Adoption of ICBs are one way to reduce the variations in everyday practice that are often associated with inconsistent outcomes (Adderley et al, 2017).The need for such programmes is particularly evident in community care settings, where care is provided for a growing patient population with advancing age and increased prevalence of complex comorbidities which are often associated with chronic wounds, such as diabetes, obesity and vascular diseases. Where the use of community-based ICBs has been established and adopted, clinical and economic outcomes have been encouraging (Hurd, 2019; Hurd et al, 2021).

In this retrospective cohort analysis, a series of ICBs, specific to each major wound diagnosis, guided clinicians to combine best practice, appropriate and timely use of advanced wound management products and consistent documentation, in a systematic manner, with the aim of providing clinically effective and fiscally responsible outcomes across the entire system (Clarkson, 2013). The implementation of this wound care programme, based on ICBs and coupled with highly detailed clinical and economic data capture, led to an opportunity to explore the benefits of ICBs implemented as part of a wider wound care programme within a real-world cohort. The ICBs utilised evidence-based, best-practice clinical interventions designed to ensure optimal healing for common chronic wounds, including diabetic foot ulcers (DFU), venous leg ulcers (VLU), pressure ulcers (PU), dehisced surgical wounds and burns.

METHODS

Design

This retrospective, real-world cohort analysis collected data from two large community care access centres (CCAC). The CCACs consisted of a home and community care organisation, operating across a diverse region of Ontario, Canada, providing an in-person wound management service as part of a full range of services, either in the patient's home or community clinic, by contracted nursing agencies. Implementation of an evidence-based wound care programme as well as collection, management and analysis of the resulting data was a service outsourced to Nursing Practice Solutions Inc (Toronto, Canada). Reporting of the analysis was carried out in line with the STROBE guidelines (von Elm et al, 2007). Ethics approval was requested and received from the Institutional Review Board (IRB) of D'Youville University before conducting the analysis.

> **'Adoption of ICBs are one way to reduce the variations in everyday practice that are often associated with inconsistent outcomes. (Adderley et al, 2017).'**

Implementation of the comprehensive wound prevention and care programme began on 1 December 2015 and was completed by 31 March 2016. Data relating to treatment of open chronic wounds from this date to 30 March 2018 were captured. This timescale, and therefore the number of patients with eligible data, was dictated by the fixed duration of the contract of services. Patients with open chronic wounds were followed from presentation until complete wound healing was achieved.

Wound prevention and care programme and ICBs

Overall, the programme provided a series of diligent, coordinated, evidence-based, best-practice treatments for common types of wounds, via standardised care pathways along the entire continuum of care — from diagnosis to wound healing. Components of the wider programme included:

- A multifaceted education programme
- Consistent and detailed data capture via an electronic tool
- Standardised product formulary
- Implementation of a series of ICBs relevant to specific wound types (DFU, VLU, PU, open surgical wounds and burns).

ICBs were used to guide clinicians in the choice of a wide range of available advanced wound management dressings and devices, that could be selected by the attending clinician according to each wound's clinical circumstances, for example, exudate volume, signs of infection, patient's skin profile and volume of slough. All clinicians received education on the ICBs and the available products. This included a decision tree to help decide which products, out of a range of available options, would best suit the clinical profile and particular needs of the patient. One product option available within each wound-specific ICB included a specific multi-layer, silicone gel adhesive, hydrocelluar foam dressing (ALLEVYN™ Life, Smith and Nephew, Hull, UK).

The ALLEVYN Life dressing consists of a multi-layered design incorporating hydrocellular foam, hyper-absorber lock away core, and masking layer. The quadrilobed shape has a wide border to fit the contours of the body more securely, and a change indicator to tell patients and caregivers when it is time to change the dressing, thus minimising dressing changes and waste (Rossington et al, 2013; Tiscar-González et al, 2021). The ALLEVYN Life dressing was listed among a range of other silicone adhesive foam dressings in a portfolio of advanced tools and practices available to clinicians in ICBs, all of which were considered to be appropriate for use. Clinicians and patients had the right to choose not to adhere to the ICB according to their preference or specific clinical scenarios. Outcomes from patients who received treatment with an ICB, and whose ICB treatment included the ALLEVYN Life dressing (referred to here as 'the ICB'), were compared with those who were not treated according to an ICB, as considered appropriate by the attending clinician. Once patients had begun treatment, nursing visits were made as required, for example, routine dressing changes, until the wound achieved healing. Patients were not followed up beyond healing.

Patient cohort

Individuals with an open chronic wound, defined as: any wound healing by primary intention that did not follow the normal trajectory of wound healing, who presented for care after March 2016 and whose wound had healed before 30 March 2018 were eligible for inclusion in the analysis. These included patients with DFU, VLU, PU, surgical wounds, skin tears, malignant/fungating wounds and non-complex burn wounds. Excluded from the analysis population were those individuals who were under 18 years of age, taking immunosuppressant drugs, or receiving palliative care, and those who had an active infection, positive human immunodeficiency virus (HIV) status, or scheduled chemotherapy.

The medical records of all patients treated with ICBs were reviewed; data relating to those who received ALLEVYN Life as part of their ICB were grouped and were explored further in this analysis. Records from all patients who did not receive treatment via an ICB, and therefore did not receive treatment with advanced wound dressings, were also identified and grouped. No methodological steps were taken to ensure heterogeneity and the sample reflected real-world use. To minimise selection bias, data from all eligible patients, with complete data records, were included in the analysis.

Collection and analysis of outcomes data

Data were collected every three weeks during routine wound-related nursing visits, or weekly in cases where the wound was not performing well, and captured electronically. Data were analysed retrospectively from electronic medical health records; all data collection and processing procedures were designed to ensure patient confidentiality. Only complete data sets were included into the analysis. Captured demographic variables included age and gender. Comorbidities such as smoking, diabetes mellitus, cardiac conditions and renal conditions were quantified using the Charlson comorbidities index (Charlson et al, 1987). These data were included as indicators of key patient characteristics, many of which are known to influence wound healing.

Baseline assessment of wound severity was carried out using the Bates-Jensen Wound Assessment Tool (BWAT), a standardised, 15-item, objective wound status continuum score used to measure healing rates and establish acuity of wounds (Bates-Jensen et al, 2019). Briefly, the first two parameters (wound location and shape) were recorded via a simple check system. Nine further assessment parameters (necrotic tissue type and amount, exudate type and volume, surrounding skin discoloration, peripheral tissue oedema, peripheral tissue induration, granulation tissue and epithelialisation) were measured on a scale of one to five with the final four parameters (size, depth, edges, undermining) measured on a scale of zero to five. Scores were added up and wound status reported on a scale of nine to 65, with higher values indicating a worse wound status (Bates-Jensen et al, 2019). For the purposes of comparing outcomes between groups, at baseline, mean BWAT scores were calculated.

In terms of clinical outcomes, time to healing and number of nursing visits to healing were expressed as the mean, per patient. The incidence of systemic infections, hospital admissions and product-related adverse events (AE) were also derived from electronic records and expressed as the proportion of each group that experienced these events. Each dressing change required a visit to a patient's home or within a community care setting by a registered nurse or registered practice nurse. Costs associated with visits, were derived from a mean per visit cost of $68.00 (CAD); this represents the direct payment made to the nursing agencies per nurse visit, excluding the cost of any consumables used. This was assumed to cover the nursing time required for travel and clinical care per nursing visit.

Data were managed and analysed using Microsoft Excel 2010. Statistical analysis was carried out using SPSS version 22 (Chicago, IL). All variables were described using descriptive statistics to determine mean and measures of variability. Comorbidity index and healing time by wound type were expressed as mean +/- 95% confidence interval. No sensitivity analyses were performed.

RESULTS

Demographics

A total of 19,203 patients were treated for open chronic wounds. There were an additional 57 patients with fungating wounds and 63 patients with skin tears who were not included into the analysis, due to the limited outcome measures captured for this wound type. Of the patients that were treated with the ALLEVYN Life ICB, 16,841 patients received this treatment. The number of patients who did not receive any ICB was 2,242. Those not being treated with an ICB were treated with standard non-advanced wound care treatments, most commonly gauze dressings; the primary reason was clinician choice/preference for the less advanced treatment option. All included data sets were complete; in total, 33 patients had incomplete data sets and were not included in this analysis.

Demographic and wound characteristics are shown in *Table 1*. Briefly, patients being treated with the ICB were marginally older (59.77 vs 56.67 years) and slightly fewer were female (38.9% vs 44.7%). Only a minority of patients were smokers (1.4% vs 2.6%, respectively). Patients who received the ICB had a slightly higher mean comorbidity score than

Table 1: Patient demographics and wound characteristics

	Treated with ICB that included the foam dressing (n=16841)						Not treated with ICB (n=2242)					
	n (%)	Age, mean years	Female, n (%)	Smoker, n (%)	Co-I, mean (SD, 95% CI)	BWAT score, mean (SD, 95% CI)	n (%)	Age, mean years	Female, n (%)	Smokers n (%)	Co-I mean (SD, 95% CI)	BWAT score mean (SD)
Total wounds	16841 (100)	59.77	6554 (38.92)	242 (1.44)	2.80 (1.84, 0.03)	27.44 (1.45, 0.02)	2242 (100)	56.67	1002 (44.69)	58 (2.59%)	2.40 (1.83, 0.08)	33.2 (9.2)
Burn	285 (1.69)	59.46	124 (43.51)	15 (5.26)	2.48 (1.88, 0.22)	24.78 (1.62, 0.19)	27 (1.20)	54.93	10 (37.04)	0 (0.00%)	2.48 (1.85, 0.70)	40.2 (1.7)
DFU	4189 (24.87)	59.92	1497 (35.74)	69 (1.65)	3.07 (1.86, 0.06)	34.80 (1.24, 0.04)	179 (7.98)	59.44	82 (47.40)	9 (8.3%)	3.82 (2.16, 0.32)	32.4 (9.7)
PU	1326 (7.87)	61.11	716 (54.00)	28 (2.11)	2.94 (1.69, 0.09)	25.88 (1.35, 0.07)	309 (13.78)	69.51	131 (42.53)	8 (5.2%)	2.72 (1.81, 0.20)	34 (8.9)
Open surgical wound	5031 (29.87)	57.88	1525 (30.31)	64 (1.27)	2.57 (1.89, 0.05)	22.65 (1.52, 0.04)	1019 (45.45)	52.17	406 (39.04)	22 (6.6%)	1.92 (1.79, 0.11)	35.2 (9.1)
VLU	6010 (35.69)	60.97	2692 (44.79)	66 (1.10)	2.79 (1.78, 0.05)	26.79 (1.49, 0.04)	708 (31.58)	60.40	373 (53.75)	8 (2.7%)	2.58 (1.44, 0.11)	36.9 (8.3)

BWAT, Bates-Janssen Wound Assessment Tool; Co-I, comorbidity index; DFU, diabetic foot ulcer; ICB, integrated care bundle; PU, pressure ulcer; VLU, venous leg ulcer.

patients not receiving the ICB (2.8 vs 2.4), but had a slightly lower BWAT score (27.44 vs 33.2, respectively, out of a maximum score of 65). Wound types varied between groups, with the most prevalent receiving an ICB being VLUs (n=6010; 35.69%), compared to the non-ICB group with open surgical wounds (n=1019; 45.45%).

Clinical outcomes

Wound healing-related outcomes, across all indications, are presented in *Table 2*. Wounds treated with the ICB had a shorter time to healing compared to those that did not (12.76 weeks vs 25.49 weeks, p<0.001) as well as needing less frequent nurse visits (mean 3.50 vs 1.87 days; p<0.001). These values equated to two dressing changes per week for patients being treated with the ICB, compared with 3.7 dressing changes per week, on average, for patients not being treated according to the ICB. This reduction in the frequency of dressing changes coupled with the shorter healing times, resulted in reduced costs to healing associated with nursing time/visits using the ICB (1733 CAD vs 6488 CAD).

The time to healing was assessed for each wound type (*Figure 1*). In all indications included here, treatment with the ICB was associated with faster times to healing, compared with treatment that did not involve the ICB.

Table 2: Clinical outcomes for all wound types

Outcome measure	Treated with ICB that included the foam dressing (n=16841)	Not treated with ICB (n=2242)	p-values
Weeks to healing, mean (SD; +/- 95% CI)	12.76 (8.65, 0.13)	25.49 (18.59, 0.77)	< 0.001
Days between dressing changes, mean (SD; +/- 95% CI)	3.50 (10.03, 0.15)	1.87 (NC, 1.1)	< 0.001
Labour/resource cost to healing, mean (CAD)*	1733	6488	< 0.001

**Mean cost to healing was derived in CAD, as follows: labour cost to healing = (mean healing time [weeks] X 7 [days per week]/ mean number of days between dressing changes) x $68 [cost per visit].*
ICB, integrated care bundle; CAD, Canadian dollars; CI, confidence interval

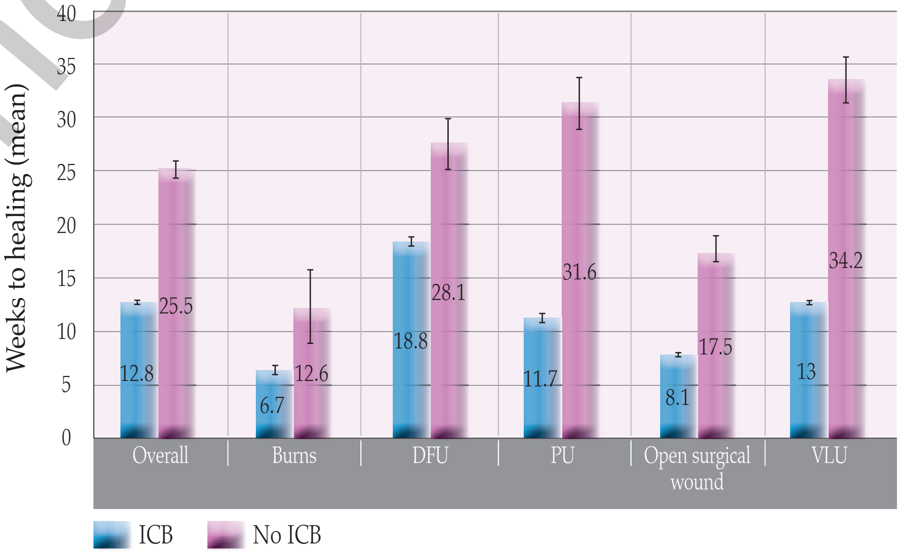

Figure 1.
Mean time to healing by wound indication.

The mean duration between dressing changes was also assessed in different wound indications (*Figure 2*). In all indications assessed, treatment with the ICB was associated with faster times to healing, compared with treatment that did not involve the ICB.

Safety reporting

The incidences of systemic infection, admission to hospital and product related adverse events (AE) were recorded for all patients included on this cohort analysis (both ICBs and the non-ICB). Significantly lower ($p<0.001$) incidence of systemic infection and hospital admissions were observed in patients treated with the ICB, compared with those who were not treated according to the ICB (*Table 3*). No product-related AEs were reported in patients treated with the ICB including ALLEVYN Life; in contrast 12 events were reported in patients not being treated with this ICB (*Table 3*).

DISCUSSION

Evidence shows that a large proportion of chronic wounds can heal within 24 weeks with appropriate diagnosis and management (Posnett and Franks, 2008). However, the reality of delivering evidence-based best practice to deliver good outcomes, can be challenging (Lloyd-Vossen, 2009). The adoption of evidence-based pathways and ICBs may make it easier to adopt best practice. The results of this real-world cohort analysis show that patients with chronic wounds who receive treatment via an ICB, that included an advanced foam wound dressing, as opposed to those who did not receive treatment with an ICB and were treated with basic wound dressings, benefited from improved outcomes, including a two-times faster mean time to healing.

> **'... the reality of delivering evidence-based best practice to deliver good outcomes, can be challenging (Lloyd-Vossen, 2009). The adoption of evidence-based pathways and ICBs may make it easier to adopt best practice.'**

The impact of these results were two-fold:

- First, for wounds treated with the ICB, their shorter treatment period reduced their risk of adverse events (e.g. wound infection)
- Second, management of these wounds for nearly half the time frame, led to significant cost and resource reductions.

These outcomes represent the real-world treatment modalities for chronic wounds, while also highlighting the benefit of evidence-based care bundles within routine care.

Patient factors, such as having multiple comorbidities, are known risk factors for delayed healing. (Hess, 2011). It is notable that the comorbidity score for patients who received treatment with the ALLEVYN Life dressing as part of the ICB was higher at the beginning of treatment than for those patients who did not (2.80 vs 2.40, respectively), suggesting that this cohort had slightly elevated risk of delayed healing. The slightly higher risk of delayed healing in the ICB group may have been mitigated through the adoption of the evidence-based ICB. These findings may have been counter-balanced by the slightly better wound status at baseline in wounds which received the ICB versus those that did not (BWAT scores of 27.4 vs 33.2 out of a maximum of 65, respectively). However, the non-ICB group did take twice as long to reach healing, therefore it could be implied that during the healing period the lower BWAT score increased within its continuum whereby the wound was headed to degeneration, compared to the ICB group that received a standardised treatment approach.

Exudate can be a major challenge in the management of chronic wounds. It is important to ensure that wound exudate does not accumulate at the wound bed or surrounding skin, as excess exudate can create further skin damage or deterioration (Tiscar-González et al, 2021). In this context, it is important to note that no product-related AE were reported in patients treated with the foam dressing-based ICB. Previous studies have demonstrated that patients using ALLEVYN Life dressing have decreased leakage, discomfort and pain associated with the dressing (Rossington et al, 2103).

Exudate is also a major consideration in determining the frequency of dressing changes. Previous studies have reported the ALLEVYN Life's ability to extend the interval between dressing changes, contributing to a release of resources, most crucially nurse

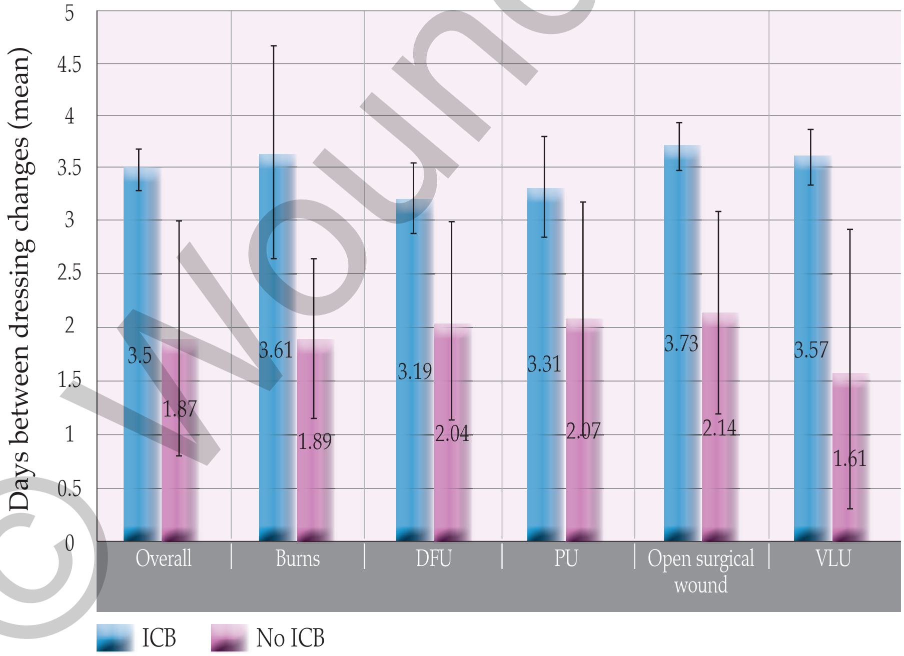

Figure 2.

Mean time to healing by wound indication. The number of weeks between first presentation of the chronic wound to healing was measured and expressed as mean +/- 95% CI.

Table 3: Incidence of systemic infection, hospital admissions and product adverse events by wound type

	Treated with ICB including the foam dressing (n=16841)				Not treated with ICB (n=2242)			
	n (%)	Systemic infection n (%)	Hospital admission n (%)	Product-related AE n (%)	n (%)	Systemic infection n (%)	Hospital admission n (%)	Product-related AE n (%)
Total wounds	16841 (100)	4 (0.02)	4 (0.02)	0 (0.00)	2242 (100)	70 (3.12)	12 (0.54)	12 (0.54)
Burn	285 (1.69)	0 (0.00)	0 (0.00)	0 (0.00)	27 (1.20)	0 (0.00)	1 (3.70)	3 (11.11)
DFU	4189 (24.87)	2 (0.05)	2 (0.05)	0 (0.00)	179 (7.98)	36 (20.11)	8 (4.47)	0 (0.00)
PU	1326 (7.87)	1 (0.08)	1 (0.08)	0 (0.00)	309 (13.78)	1 (0.32)	1 (0.32)	1 (0.32)
Open surgical wound	5031 (29.87)	1 (0.02)	1 (0.02)	0 (0.00)	1019 (45.45)	31 (3.04)	1 (0.10)	3 (0.29)
VLU	6010 (35.69)	0 (0.00)	0 (0.00)	0 (0.00)	708 (31.58)	2 (0.28)	0 (0.00)	6 (0.85)

ICB, integrated care bundle; AE, adverse event; DFU, diabetic foot ulcer; PU, pressure ulcer; VLU, venous leg ulcer.

time (Stephen-Haynes et al, 2013). Within this analysis, patients who were treated with an ICB containing ALLEVYN Life needed a dressing change on average every 3.5 days (or twice a week), compared with more frequent dressing changes (every 1.87 days) in patients who were not treated with the ICB. This data is indicative of patients treated with an ICB containing ALLEVYN Life being able to have an extra day of undisturbed wound healing, through negating the need for the dressing to be changed. Frequent dressing changes can impair wound healing, in particular by increasing the risk of wound contamination or infection and may also decrease patient satisfaction, in particular because of the pain often associated with dressing changes (Brindle and Farmer, 2019). The benefits of reducing the frequency of dressing changes have been reported to include undisturbed healing, reduced overall costs and a release of nursing time (Brindle and Farmer, 2019), in addition to improving patient quality of life (Stephen-Haynes, 2015).

Wound dressings have incorrectly been considered one of the largest expenses in wound care. A recent study contradicts this, estimating that the consumables account for only 6% of the total cost of wound management (Guest et al, 2020). In comparison, almost 50% of the total cost of wound management is incurred by resource costs associated with community nurse and clinician visits (Guest et al, 2020). Thus, it is important to consider that the type of dressings used may influence overall costs more broadly than the unit cost of the dressing (Brindle and Farmer, 2019). Dressings that require more frequent dressing changes will result in higher overall material and labour costs (Tiscar-González et al, 2021). It may therefore be beneficial to consider using a dressing that can be safely worn for longer periods to avoid unnecessary disruption to the wound bed, and enabling reduced nursing visits leading to reduced costs. Patients treated with the ICB incurred lower costs overall than those who did not receive this treatment, reflecting a combination of the reduced frequency of dressing changes (each of which would have required a visit) and the faster time to healing.

> **'With the Covid-19 pandemic stretching services beyond capacity, clinicians have had to further consider how patients with wounds are managed.'**

With the Covid-19 pandemic stretching services beyond capacity, clinicians have had to further consider how patients with wounds are managed. Recommended measures such as telemedicine consultations, self-care and using dressings that reduce frequency of dressing changes have been implemented (Society, 2020). Although these measures were a contingency for Covid-19 escalation, the ambition of reducing interventions to optimise outcomes while alleviating service demands is not a new one, with many discussions around the benefits of undisturbed healing gaining momentum (Brindle and Farmer, 2019).

STRENGTHS AND LIMITATIONS

The retrospective design of this work means that only information captured in the existing electronic records was available for analysis. One of the strengths of the approach was that great effort was taken throughout the implementation of the ICB within the two community care access centres to ensure completion of the electronic health records for the wounds being treated. This meant that the vast majority of patient records were complete, resulting in few having data gaps. No statistical analysis was carried out to assess whether the sample sizes were required. However, this was justifiable as the purpose of this work was to show the use on ICBs within routine clinical practice and therefore a set sample was not considered necessary. In fact, all patients within the two-year ICB integration period were eligible to be included in the cohort, allowing a large dataset to be reported across multiple wound types.

The costs described within this analysis were limited to those associated with nursing visits. Although, as said, nursing visits are a key determinant of the total cost of wound treatment (Guest et al, 2020), the authors' acknowledge that because no wider aspects of costs were taken into account (doctor visits, hospitalisations, etc), the costs reported in this analysis, may underestimate the true costs associated with wound management. Finally, because the impact of a multi-component ICB was explored, it was not possible to derive the effect of any of the individual aspects of the bundle on outcomes. Nevertheless, the main findings, that delivery of care via an ICB improves outcomes, remains valid.

CONCLUSION

This real-world cohort analysis demonstrated that adoption of an ICB that included treatment with a multi-layered, silicone adhesive foam dressing improved clinical outcomes by reducing chronic wound healing times and the frequency of wound dressing changes. Cumulative nursing visits also decreased, leading to reduced nursing labour cost associated with treating chronic wounds within a community setting. Furthermore, the clinical and economic outcomes presented here establish that an ICB including ALLEVYN™ Life is feasible and effective for clinicians to adopt across multiple wound types. **JCN**

Acknowledgements

The authors would like to thank the following individuals for their support in the preparation of this manuscript; Helen Horton, Emma Woodmansey (both employees of Smith and Nephew during early stages of manuscript preparation) and Jenny Smith (JMS Medical Writing Services Ltd).

Disclosures

Dr Theresa Hurd received a consultancy fee from Smith and Nephew for her time in participating in the development and writing of this manuscript. Dr Murdoch is an employee of Smith and Nephew.

Funding

Smith and Nephew

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Differences in NHS continence/bladder/bowel services in Wales compared to England

Ann Yates

When most people, professionals or media discuss the NHS, it is more often NHS England that they think about. However, due to devolution, each country has its own form of NHS system. While the goal of any NHS system is to provide an excellent service for health provision to their population, how it is delivered can vary greatly. This article examines how the initial NHS was set up, how devolution in Wales has changed how services in Wales are commissioned, and how this has impacted on continence/bladder/bowel care in Wales.

KEYWORDS:
■ NHS ■ Devolution ■ Continence/bladder/bowel care in Wales

The establishment of the National Health Service in 1948 was in response to the lack of social and welfare care after the Second World War. It has seen many changes in its development, and still has many challenging times ahead. However, with developments, differences have now evolved with different structures of organisation between NHS England and NHS Wales. These differences within health service delivery systems have contributed to different approaches to continence/bladder and bowel services being developed and approaches to strategic care provided for individuals. This article looks at why the initial NHS developed, effects Welsh devolution has on service type and why this has led to certain developments within Welsh continence/bladder/bowel services.

Ann Yates, director of continence services, Cardiff and Vale University Health Board

> **'NHS England's system has been based on a market-based approach. However, Wales no longer focuses on that system but has based its approach around three-year integrated medium-term plans.'**

ESTABLISHMENT OF NATIONAL HEALTH SERVICE AND WELSH DEVOLUTION

The National Health Service (NHS) was established on the 5th of July 1948 after the dark days of the Second World War (Shapiro, 2010), with the underlying principles of:

- Meeting the needs of everyone
- Free at point of delivery
- Based on clinical need, not ability to pay.

The service was intended to be encompassing of all clinical conditions for the entire population based on two components — the establishment of district general hospitals owned by the state and a network of independent providers for primary care (Shapiro, 2010). This developed into the health service we know today, but with deviations within each of the four nations.

NHS England's system has been based on a market-based approach. However, Wales no longer focuses on that system but has based its approach around three-year integrated medium-term plans (Doheny, 2015). Since 2009, the Minister for Health and Social Services has been directly responsible for the delivery of health services across Wales via the seven local health boards (*Figure 1*) and three NHS trusts, i.e. ambulance service, Velindre (specialist cancer services), and Public Health Wales. It is partly due to the geographical size that services have been able to achieve integrated working relationships.

Currently, NHS England is moving on to integrated care systems (ICSs) with the aim of playing a critical role in aligning action between partners to achieve their shared purpose — to improve outcomes and tackle inequalities, to enhance productivity and make best use of resources and to strengthen local communities (NHS England, 2021). Wales, however, has its annual planning framework 2021–2022 (NHS Wales, 2020), which outlines the ministerial priorities and how they expect health boards to achieve them by enabling the workforce, technological advances, finance, research and development, etc. These complicated healthcare systems may seem to have no immediate impact on a professional's day-to-day clinical work, however this will be explored further by examining the effects these systems have on continence/bladder/bowel services.

DEVELOPMENT OF CONTINENCE/ BLADDER/BOWEL SERVICES

Before 1998 continence services existed, however they were sparse throughout the UK. There was little education on continence/bladder/bowel care, no set competency framework for specialists and most services existed as merely a pad product delivery service. This view was supported by an audit commission report (1999) that stated, 'In practice, district nurses implement a conservative care plan focused on managing the problem rather than treating the underlying cause' (Department of Health [DH], 2000).

The DH's *Good Practice in Continence Services* document (2000) saw these services as a new concept and identified them as being an essential part of the NHS, as incontinence is a treatable condition. The guidance outlined a model of good practice to help achieve more responsive, equitable, high quality and effective services that would benefit patients (DH, 2000). Its identified aims were to:

- Raise awareness of professionals to the problems of continence
- Provide practical guidance for the NHS on the organisation of continence services across primary, acute and tertiary care
- Provide advice on the individual assessment and treatment of continence by primary care and community staff
- Describe targets that can be developed locally.

Since the publication of this guidance, there have been multiple guidelines and reports on continence care, which have mainly been associated with NHS England but have also been adopted in NHS Wales. These reports include the *Cost Effective Commissioning for Continence Care* (All Party Parliamentary Group for Continence Care Report, 2011), which identified the need for strategic planning (identifying population needs for continence care, capacity planning, reviewing current service provision and identifying gaps and priorities), procuring of services including contracts and managing demand, and finally, monitoring and evaluating (by looking at activity and quality of service provided, financial arrangement, and feedback from patients).

DEVELOPMENT OF CONTINENCE SERVICES IN WALES

In 2006, the All Wales Continence Forum (AWCF) was established after the launch of the All Wales Bladder and Bowel Pathway (NHS Wales, 2006). The initial terms of reference for the group were to launch the pathway throughout Wales and update it as clinically required. This group was recognised by the then Welsh Nursing and Midwifery Council and reported directly to the Welsh Government via the office of the Chief Nursing Officer for Wales. This is still the case, but also it now has representation on the group from the office of the Chief Nurse for Wales.

The report from the advisory group on a strategy for older people in Wales (Welsh Government, 2002) stated that urinary incontinence is considerably under-diagnosed or diagnosed late because of:

- Social stigma
- Embarrassment
- Lack of knowledge
- An assumption that it is inevitable with ageing.

In response to this report, the AWCF launched a paper for the Welsh Government (2011a), *The indignity of incontinence: local information pack for assembly members calling for action in development for continence services*.

The AWCF has now developed to become an influential participant in developing and advising on continence/bladder/bowel care for the Welsh Government in Wales. They have representation on all leading boards relating to continence care, including Public Health Wales (PHW), Welsh Urology Board, and Women's Health Implementation Group. This has allowed Welsh continence/bladder/bowel services to develop numerous all Wales guidance and influence future continence care for patients. This will now be discussed in more detail.

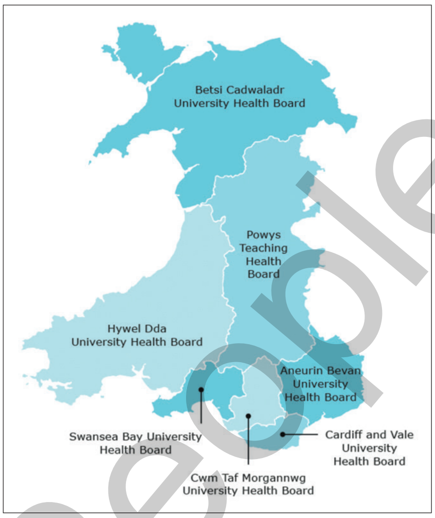


Figure 1.
The seven local health boards in Wales.

CURRENT GUIDANCE

Contracts and procurement

Contracts for Welsh continence pad products and all Wales acute urology products are undertaken by NHS Wales Shared Services Partnership (NWSSP) (https://nwssp.nhs.wales/ourservices/). This is an established procurement service that assists health boards and trusts in the delivery of patient-centred services. It is an award winning service focusing on value, safety, excellence, innovation and quality. It has allowed Wales to identify an all Wales need for both the continence pad product contract and acute urology contracts. This means that there is greater purchasing power, less clinical variation across the country (while still providing for all clinical variations and needs), decreased post code variations and an equitable provision for patients in Wales. This is soon to be supported by the publication of the updated All Wales Continence Forum's consensus document, *Guidance for the provision of continence containment products for adults in Wales* (2022).

This now indicates all Wales guidance on selection of pad products for in-patient care and a criteria for issuing pull-up pants.

Another service that NWSSP provide is the surgical materials testing laboratory (SMTL). Their core service is to provide testing and technical services regarding medical

Table 1: PHW UTI nine key standards

Prevention	
1	Policies and procedures are in place for the care and management of patients with urinary incontinence: ▸ Continence assessment process and the provision and use of containment products ▸ The use and availability of bladder scanners in all inpatient areas to aid decision-making ▸ An evidence-based urinary catheter (UC) care pathway to support the risk assessment process and need for UC insertion ▸ Infection prevention and control policies that support best practice, e.g. aseptic non-touch technique (ANTT), standard infection control procedures (SICP) ▸ Audit processes to monitor compliance with policies
2	All clinical staff inserting, caring for and managing patients with UC must have adequate training: ▸ A four yearly competence assessment for those inserting catheters and competence assessment in ANTT ▸ Current mandatory training in infection prevention and control ▸ Keeping accurate records of catheter management, i.e. date of insertion, expected/actual date of removal, justification for insertion, daily assessment of need and medical device details ▸ Audit processes to monitor compliance
3	Every patient will have a transferable UC passport: ▸ A continuous accurate record of catheter management ▸ Information for patients and/or carers about their device and its management ▸ Audit processes to monitor compliance
4	Good hydration in the prevention of UTI is managed according to best practice and national guidance: ▸ Risk assessment of individual needs for hydration interventions ▸ Engaging the principles of Public Health Wales' (2016) 'Water keeps you well' campaign in all settings ▸ Compliance with All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients (Welsh Government, 2011b) ▸ Involving the patient, and where appropriate their relatives and carers, in understanding the benefits of good hydration ▸ Accurate recording of fluid balance so that hydration can be assessed correctly ▸ Provision of tools and drinking equipment that allow the patient to participate in maintaining their own hydration ▸ Audit processes to monitor compliance
Sampling and diagnostics	
5	Diagnosis, when UTI is suspected, adheres to a recognised criteria: ▸ Healthcare worker training in accurately assessing the signs and symptoms of UTI according to defined criteria ▸ Consider the use of algorithm to assist decision-making ▸ Accurate recording of the assessment of UTI and the subsequent actions taken ▸ Avoiding the use of dipsticks for UTI diagnosis in all but predetermined patient groups ▸ Audit processes to monitor compliance
6	Sampling of urine, where UTI is suspected, adheres to best practice: ▸ Healthcare worker training in the correct handling, collection, storage and transport of specimens ▸ Policy for the correct handling, collection, storage and transport of specimens ▸ Adherence to a current Laboratory Procedure SM1B41: investigation of urine algorithm to assist decision-making ▸ Audit processes to monitor compliance
Treatment and management	
7	Antibiotic treatment of UTIs will follow All Wales treatment guidelines: ▸ Adherence to the national formulary for primary or secondary care prescribing as appropriate ▸ Practising best principals of antimicrobial stewardship, e.g. start smart then focus (an antimicrobial stewardship initiative to promote early initiation of antibiotics followed by review and revision of antibiotic prescriptions within 48–72 hours [Santillo et al, 2019]) ▸ Audit processes to monitor compliance
8	Antibiotic prophylaxis for UTI will follow treatment guidelines and include: ▸ Adherence to national formulary for primary or secondary care prescribing as appropriate ▸ Reviewing the patient every six months to reduce risk of increased antimicrobial resistance ▸ Audit processes to monitor compliance
Outcome measurement	
9	Mandatory national surveillance of *Escherichia coli* (E.coli) bacteraemia will be used to inform reduction strategies for UTI and will include: ▸ Investigation of all cases and assessment to determine sources linked to UTI ▸ Annual point prevalence survey (PPS) of prescribing will be used to inform prescribing compliance in primary and secondary care settings

devices to the Welsh NHS, enabling procurement services for NHS Wales and others in the NHS to undertake evidence-based purchasing. They also provide commercial testing services to international medical device agencies, and are accredited to ISO17025 international standing for testing laboratories. This means that if there is any doubt with regards to the efficacy of any medical device used in urology, it can be independently tested prior to purchase or during a contract if there are any clinical incidents raised.

Case study

A campaign to combat avoidable urinary tract infections (UTIs) linked to inappropriate use and care of catheters has reduced use of the devices by almost 20%. Betsi Cadwaladr University Health Board said the number of patients using catheters in its hospitals and the community across North Wales had fallen by around 400 over the last six months.

This follows the launch of the health board's new catheter passport, which provides important information for the user, their loved ones, healthcare staff and carers. Every catheter user is issued with one of the documents, which includes details of the purpose of the device and guidance to help care for it — plus a handy credit card-sized reminder of its scheduled change date.

Hospital staff have been asked to consider removing catheters every few hours where inpatients no longer meet the HOUDINI (an acronym for haematuria, obstruction, urological surgery/intervention, decubitus ulcer, input/output monitoring, nursing care and immobility) criteria to use one, and users in the community have been encouraged to ask for the devices to be removed for a trial period where possible.

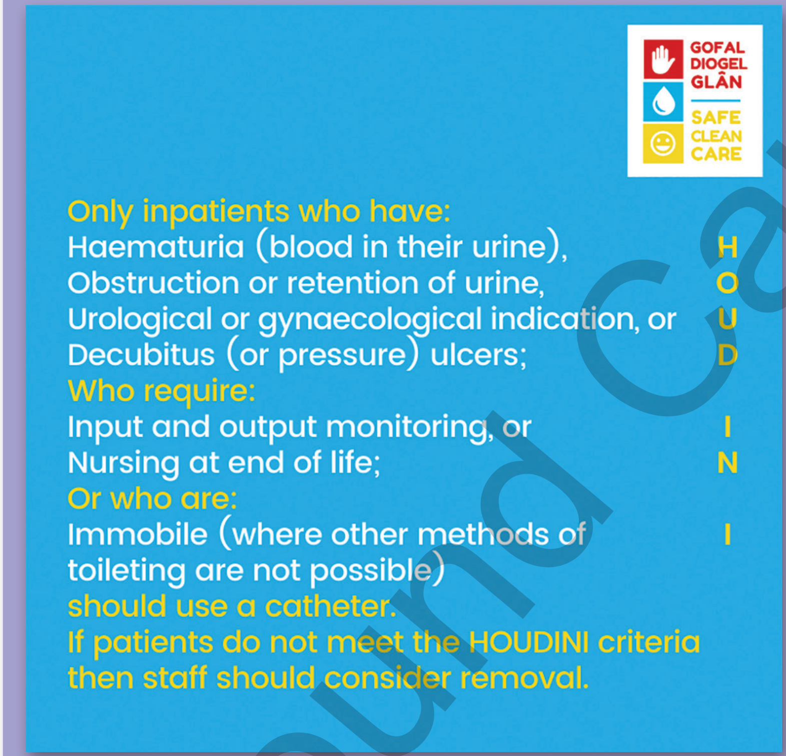
The new approach ensures that catheters are used safely and only by people who really need them.

Project lead and deputy head of community nursing for the Betsi Cadwaladr's East area, Kristy Ross, said a full-scale audit of catheter use and infections would be completed in the coming weeks, but early signs from the initiative had been very encouraging:

Our records and routine reviews have shown that colleagues in our acute, community and district nursing teams have been empowered by this campaign, are challenging inappropriate catheter use, and are delivering better care. It is fantastic to see our staff developing greater catheter confidence and improving our patients' quality of life. Our project is having a positive impact, and we hope to be able to share more results soon.

The initiative has been backed by health campaigner, Anna Cooper, from Wrexham. The 28-year-old used an in-dwelling catheter for two years as a result of treatment linked to widespread endometriosis.

Betsi Cadwaladr delivers health services to a population of around 700,000 people across the Isle of Anglesey, Gwynedd, Conwy County Borough, Denbighshire, Flintshire and Wrexham County Borough.



Only inpatients who have:
Haematuria (blood in their urine),
Obstruction or retention of urine,
Urological or gynaecological indication, or
Decubitus (or pressure) ulcers;
Who require:
Input and output monitoring, or
Nursing at end of life;
Or who are:
Immobile (where other methods of toileting are not possible)
should use a catheter.
If patients do not meet the HOUDINI criteria then staff should consider removal.

Figure 2.
HOUDINI acronym.

Urinary catheter care

Like Public Health England (2021), PHW has a similar agenda to decrease the prevalence of urinary tract infections (UTIs) associated with the use of indwelling urinary catheters (CAUTIs). Identified as interventions that can reduce CAUTIs and prioritised by NHS England (2021) were:

- Closer collaboration between healthcare professionals (HCPs) working in different settings or wards at the point of patient transfer
- Promoting working closely with patients and their families, by making sure that they are able to make an informed choice about catheter use
- Promoting a standardised approach by ensuring that HCPs in different settings adhere to the same guidelines when managing patients with catheters
- Ensuring that information about catheter use is recorded in a similar way across settings, thus allowing documentation to be shared between HCPs working in different settings
- Addressing staff beliefs and knowledge about risks associated with use of catheters
- Provision of bladder scanners with staff training in use of scanners.

PHW also identified its UTI nine key standards for UTI prevention, treatment and management (PHW, 2018). This identified nine standards which then were divided into subdivisions (*Table 1*).

The AWCF has been instrumental in trying to achieve these outcomes. There is already an all Wales catheter eLearning programme (https://learning.wales.nhs.uk/), accessible to all professionals in acute, primary and nursing home settings. It has also been agreed for the instruction of nursing students. It is accessed either via electronic staff record (ESR) or e-Learning Wales. It has defined competencies agreed by the learning and development teams and updating is recommended every five years in line with current guidance.

An All Wales catheter passport (NHS Wales, 2016) has also been developed for patient information and accurate recording of patient's catheter history.

Electronic records

With regards to evidenced-based pathways, the AWCF has clinical representation for devising All Wales electronic records for both acute and community services under the guidance of the NHS Wales Informatics Services (NWIS) and Welsh Community Care Information System (WCCIS). The catheter bundle with regards to insertion, management and removal has already been trialled within the acute sector and this bundle has identified that there needs to be standardised evidenced-based practice and guidance within all areas of care, which should be reflected in patient records.

Work has also been undertaken to standardise electronic continence/bladder/bowel assessments, incorporating all aspects of what good assessments should include. As records in the near future will be electronic, this will give services valuable information with regards to population needs, staffing required, types of incontinence suffered and patient outcome and experience measures. In the author's opinion, this can only be seen as a positive move.

CONCLUSION

The NHS was set up after the Second World War to help health and social care. Since then, it has evolved. However, in more recent years, due to devolution of the four countries, it has evolved in different directions. Within each system of the NHS there are benefits and disadvantages with regards to service delivery, however this article has tried to identify some of the positive aspects with regards to NHS Wales and continence/bladder/bowel care provision. Some of these aspects have only been achievable due to the smaller geographical size of Wales compared to England. This has allowed the AWCF to establish itself as an excellent resource for the Welsh Government and influence service provision, which hopefully will shape the future of continence/bladder/bowel services for Wales. **JCN**

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Long Covid: developing a virtual rehabilitation programme

Hannah Brady Sawant*, Thuvia Flannery*, Rachel Tarrant, Jenna Shardha, Denise Ross

This article, the second in a three-part series on Long Covid (LC), focuses on how one community-based NHS LC clinic developed and now delivers a 10-week group-based virtual rehabilitation programme (VRP), which aims to provide persons with Long Covid (PwLC) concepts on current thinking in LC, alongside self-management education and support. It highlights the role of embedded clinical research fellows (CRF), and their role in an in-depth service evaluation of the VRP, using established research methods and being peer reviewed/supervised by a research team to support best practice in an evidence poor field.

KEYWORDS:
- Digital health
- Service evaluation
- Quality improvement
- Self-management
- Service development

As we approach the third anniversary of the UK's initial lockdown in response to the novel SARS-COV-2 virus, the NHS is attempting to return to 'business as normal' with the delivery of routine care (NHS England, 2019; Department of Health and Social Care, 2022). There is continued implementation of digital transformations and integrated care systems (ICS) intended to improve healthcare services and sustainability (NHS England, 2019; Department of Health and Social Care, 2022). This also facilitates increased availability of information for managing health needs and control over care for those under NHS services (Department of Health and Social Care, 2022).

> **'There is continued implementation of digital transformations and integrated care systems (ICS) intended to improve healthcare services and sustainability.'**

Post-Covid-19 syndrome, more commonly termed Long Covid (LC) (see *Definition* box), has placed additional and considerable demands on many NHS services. Although LC symptoms can vary significantly from person to person, the most commonly reported include; fatigue, breathing issues (shortness of breath), 'brain fog' (cognitive impairment), depression and anxiety, palpitations, dizziness, dietary issues, and joint pain (National Institute for Health and Care Excellence [NICE], 2022). The most recent prevalence data identifies that there are approximately two million people living in the UK who self-report symptoms of LC, 77% of whom state their symptoms limit their daily activities (Office for National Statistics [ONS], 2023).

With a growing number of people with Long Covid (PwLC), leading to increased wait times for assessment and access to treatment, and in the presence of activity-limiting symptoms common in LC, the Leeds Long Covid Rehabilitation Service (LLCRS) developed a group based virtual rehabilitation programme (VRP), a complex digital intervention (Skivington et al, 2021), utilising the rapid adoption of digital health concepts (NHS England, 2019) with a multidisciplinary team (MDT) approach. The course development used principles of virtual rehabilitation synthesised from existing literature on cardiac and pulmonary rehabilitation and stroke (Chen et al, 2015; Chan et al, 2016; Hwang et al, 2017; Munoz Esquivel et al, 2018). These studies demonstrated that virtual interventions were comparable to in-person interventions and appeared

Definition..

The Health Foundation (2022) and NICE (2022) define LC as:

Signs and symptoms that develop during or after an infection consistent with Covid-19, continue for more than 12 weeks and are not explained by an alternative diagnosis. It usually presents with clusters of symptoms, often overlapping, which can fluctuate and change over time and can affect any system in the body.

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to be well received (Munoz Esquivel et al, 2018).

Since September 2020, this digital offering has been developed based on user and staff feedback into the current 10-week VRP, which is supported by in-person clinic appointments and tailored to the individual needs of the PwLC. Further personalised patient care is available through a weekly MDT meeting between LLCRS therapy staff and hospital-based cardiology, respiratory and rehabilitation medicine consultants with a specialist knowledge of LC. This MDT meeting provides a regular forum for any concerns regarding patient symptoms/management. Additional medical investigations or assessments can then be actioned in a timely and appropriate manner with an assured follow-up. This compatibility with ICS, use of digital technology and ability to flex to individual patient needs has potential to provide a model of rehabilitation intervention for other long-term conditions (LTC) (NHS England, 2019).

The VRP comprises weekly hour-long sessions, at a regular time over a 10-week period and is delivered using Microsoft Teams (MT). Sessions are facilitated by two members of the LLCRS therapy staff, with 20 minutes of pre-recorded video content and then peer discussion and opportunities for questions and answers. The size of VRP groups can vary between 20 and 40 PwLC, allowing for greater numbers of PwLC to gain access to education and self-management approaches. Each session focuses on one of the key symptoms of LC (*Table 1*) and encourages an interactive overview of symptoms, teaches self-management, with peer support allowing sharing of lived experiences. Participants are provided with session slides and a presentation link each week to review and use as a resource.

In contrast with other online courses, the VRP encourages patients to work through the platform individually and at their own pace, supplemented by separate access to MDT members (Marquis et al, 2015; Chan et al, 2016). The LLCRS VRP utilises attendance and support within the same peer group in a real-time setting, as it is suggested that this approach enables self-management, online education underpinned by peer support, and increases the adoption of behaviours likely to contribute to participants' health (Hutchings, 2020; NHS, 2020; Parkin et al, 2021; Salawu et al, 2020).

Table 1: Sessions from virtual course for symptom management of Long Covid

Session topic	Lead facilitator from clinical team
1. Understanding Long Covid	Medical doctor, occupational therapist, physiotherapist (clinical co-ordinators)
2. Fatigue management, part 1	Occupational therapist
3. Causes of breathlessness	Physiotherapist
4. Sleep and relaxation	Occupational therapist
5. Mental wellbeing	Cognitive behavioural therapy (CBT) therapist, psychological wellbeing practitioner (PWP), occupational therapist
6. Diet	Dietician
7. Exercises and activity	Physiotherapist
8. Fatigue management, part 2	Occupational therapist
9. Breathing retraining	Physiotherapist
10. Progressing exercise and activity	Physiotherapist

DEEP DIVE INTO THE VRP: SERVICE EVALUATION

The following section summarises the main findings of a mixed-methods evaluation of a VRP for self-management in Long Covid (Flannery et al, 2022).

Methods

The LLCRS were keen to investigate how the VRP was working and what might be improved. The service has one whole time equivalent clinical research fellow (CRF), whose role includes conducting service evaluation of rehabilitation interventions for PwLC. The current evidence base and research about LC and its management is still in development (Parkin et al, 2021; NICE, 2022). The aims of this evaluation were to help understand the benefit of the VRP to PwLC, and to gain the views of those delivering the intervention; thus informing ongoing VRP development. The team used appropriate research methods, i.e. they applied the principles of a pragmatic, consecutive mixed methods design aligned to investigating healthcare topics where little evidence exists (Topping and Timmins, 2019).

Members of the MDT involved with developing and/or delivering the VRP were asked to complete a questionnaire anonymously. This contained a mix of open and closed questions about their views of the aims, contents, strengths, and weakness of the intervention (VRP). The questions were informed from previous VRP planning meetings with the clinical team delivering the course. The emergent qualitative data were analysed using Template Analysis (King, 2014) and then used to design a questionnaire for PwLC, supplemented with qualitative feedback from service users. Additional quantitative data was also collected, including demographic data, number of sessions attended, acceptability of group size, and the preferred days and times of sessions.

Patients with Long Covid who had previously consented to be involved with service evaluation projects were approached and asked if they would like to take part in an evaluation questionnaire by phone call. This was to reduce any potential issues with technology and was conducted within three weeks of completing the VRP to reduce recall bias. Exclusions included those who had not consented to take part in service evaluations or research, or identified as having limited English language capabilities.

Results: quantitative

Seventeen MDT members, five occupational therapists, eight physiotherapists, one dietician, three professionals in the 'other' category, involved with delivering the VRP and 38 PwLC who had consented to service evaluations on entry to service and who had been booked to attend the VRP between November 2021 and March 2022 were included in the service review (*Table 2*; Flannery et al, 2022).

Quantitative data analysis showed that 21 PwLC had some previous experience of using Microsoft Teams (MT), 14 had not previously used and three did not answer. Issues with MT were reported by 16 PwLC: six due to the MT link, another six felt it was due to being new to technology and four had internet connection issues. No correlation was found between duration of LC symptoms, severity of symptoms, age or gender.

Only three PwLC stated that they felt the group size was 'too big' and no-one felt it was 'too small'. The days and times that the course ran was acceptable for 24 of the respondents (Flannery et al, 2022).

A core outcome of the evaluation was around knowledge and putting skills into practice for PwLC attending the VRP, in addition to identifying any barriers encountered by them. Approximately 95% (n=36) felt that they gained knowledge and used their LC self-management. There were barriers to implementing these skills, including work (n=3) and home (n=1). Session attendance was variable with some sessions being better attended than others (*Figure 1*; Flannery et al, 2022).

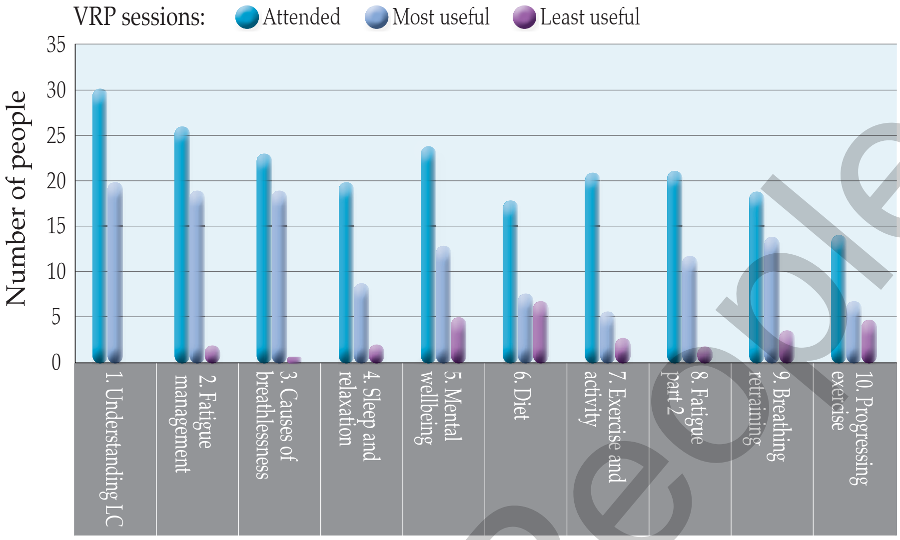

Figure 1.
Most and least useful sessions (VRP) (Flannery et al, 2022).

Ten PwLC attended less than 50% of sessions, citing the following reasons (Flannery et al, 2022):

- Work/life (n=5)
- Format/content (n=2)
- Technical issues/link (n=2)
- No IT knowledge (n=1).

Results: qualitative

Six main themes were identified within qualitative data, when merging both PwLC and members of the MDT responses, namely:

- Attendance and accessibility
- Content
- Use of digital technology
- Group dynamics
- Individual factors
- Internal change

(Flannery et al, 2022).

These were broken down into further main sub-themes and sub-themes (*Figure 2*).

Attendance and accessibility

This theme highlighted inequalities associated with knowledge and access to IT (digital literacy), with some participants requiring assistance of family members to access the course, or being unable to access some or all of the sessions because of difficulties with the platform link (Flannery et al, 2022). Time and work/life commitments were also referenced as barriers to attendance. Several people expressed that they would like a face-to-face session as part of, or for the entirety of the course (Flannery et al, 2022). This was balanced by many PwLC appreciating the reasons why the VRP was online — i.e. ability for more people to attend without exacerbating LC symptoms such as fatigue, as well as reducing the impact on breathlessness by avoiding the need for travel, parking and other logistical issues (Flannery et al, 2022).

Content

For the majority of PwLC invited to attend the VRP, the content was 'just right', although a few felt that there could be more depth of information (Flannery et al, 2022). There was agreement that the sessions that were repeated (e.g. fatigue parts 1 and 2), were not required (Flannery et al, 2022). The ability to be able to recap, with access to the slides

Table 2: PwLC demographics (Flannery et al, 2022)

Demographic data	N=38
Gender	F 26 (68.42%); M 12 (31.57%)
Age (years)	25–34 five (16%) 35–44 seven (19% 45–54 nine (22%) 55–64 eight (19%) 65–74 six (13%) Not known three (11%)
Ethnic	White: 31 (78.94%) Asian Indian: 3 (7.89%) Asian Pakistani: 2 (5.26%) Black African: 1 (2.63%) Mixed White and Black Caribbean: 1 (2.63%)
Duration of LC symptoms	3–6 months 0 6–12 months 0 12–18 months 20 18–24 months 18

Main themes	Main sub-themes	Sub themes
1. Attendance & accessibility	1.1 Barriers 1.2 Enablers 1.3 Options/solutions	1.1.1 Technology and link 1.1.2 Environment 1.1.3 Cognitive **1.1.4 Accessibility** 1.3.1 Face-to-face interactions 1.3.2 Session: format and style
2. Content	2.1 Acceptability 2.2 Coherence 2.3 Utility 2.4 Value **2.5 Purpose** **2.6 Engagement**	2.1.1 Just right 2.1.2 Too little/basic 2.1.3 Unacceptable/unhelful/lacking 2.3.1 Written 2.3.2 Increased understanding 2.3.3 Timing personal 2.4.1 Overall value 2.4.2 Enhancing value (knowledge needs) 2.4.3 New horizons **2.5.1 Education** **2.5.2 Delivery** **2.6.1 Interactivity** **2.6.1 Continuity**
3. Use of digital technology	3.1 Experience 3.2 Confidence **3.3 Delivery** **3.4 Slides**	3.1.1 Platform (participation) 3.1.2 Enhancing platform experience 3.2.1 Hardware **3.4.3 Appearance**
4. Group dynamics	4.1 Interaction 4.2 Participation 4.3 Facilitation presenter/delivery	4.1.1 Positives 4.1.2 Interaction: enablers, solutions and opportunities 4.2.1 Benefits 4.2.2 Barriers 4.2.3 Enhancing participation
5. Individual factors	5.1 Pre-existing conditions 5.2 Long Covid symptoms **5.3 Individual care needs**	5.2.1 Impacts of Long Covid symptoms
6. Internal change	6.1 Self-reflection 6.2 Self-efficacy 6.3 Self-management 6.4 Acceptance of condition	6.1.1 Positive reflection 6.1.2 Negative reflection 6.2.1 Recognising self-efficacy 6.3.1 Self-management leanings 6.3.2 Mechanisms for knowledge gains 6.3.3 Advancing self-management skills

Figure 2.

Table of main themes, main sub-themes and sub-themes from template analysis of qualitative data (Flannery et al, 2022).

following each session was perceived as valuable (Flannery et al, 2022).

Use of digital technology

Again, difficulties with technology were highlighted by some PwLC (Flannery et al, 2022). However, members of the MDT highlighted the advantages of digital technology as a means of delivering en masse information and self-management techniques from reputable sources (Flannery et al, 2022).

Group dynamics

This theme displayed variations in how group session discussions and the peer support element of the VRP were received. Some PwLC felt that the VRP provided an opportunity for sharing lived experiences, while others stated that the group was too big to gain any effective peer support. Some participants said they were reluctant to participate, as they felt uncomfortable in a group — a sense of embarrassment (Flannery et al, 2022).

Individual factors

For those with pre-existing long-term conditions to LC, the VRP may present conflicting advice or offer no new insights into self-management (Flannery et al, 2022). Members of the MDT recognised the lack of ability to fully adapt the course to meet individual needs (Flannery et al, 2022).

Internal change

Many participants valued the VRP because it validated their experiences of LC and gave skills and knowledge that allowed them to manage their symptoms in a practical way; although some found that the information concerned them, with fear of symptoms returning or that their symptoms were unable to be resolved (Flannery et al, 2022).

Impact of results

Several overall recommendations were made for VRPs, alongside specific changes to the LLCRS VRP. Overall recommendations are included in *Table 3*.

Specific changes to the course included the introduction of a YouTube channel with the pre-recorded videos available for those unable to make 'live' sessions due to work/life commitments or technology difficulties. A workbook with tasks and additional information to compliment both the live and YouTube sessions for PwLC to work through was also recommended. The preferred model is still that PwLC attend the live sessions if they are able.

Although access to local charities and libraries to help with IT were already established within the team, further work in addressing inequalities in digital literacy was identified as being needed. In addition to working to address engagement with less well represented groups, cost of addressing digital inequalities and patient outcomes were also highlighted as areas for further investigation (Flannery et al, 2022).

Ongoing feedback

Further comments about the VRP have been identified via the 'friends and family test'. These were made anonymously 12 months after the service evaluation and subsequent changes. They highlight the ongoing value of the VRP intervention:

> *I could not believe anything would help me feel better. However, the rehabilitation programme helped me in so many ways. Particularly helpful were the fatigue management tips and the breathing techniques.*
>
> *I loved being part of a group and its discussions.*
>
> *Everything was explained, I was given a link or number for everything, I accessed the online courses... fantastic service.*

Role of embedded CRF within this service evaluation

Although the role of an embedded CRF remains open to debate (Bannister, et al 2013; Vindrola-

Table 3: Recommendations made for development of VRPs (Flannery et al, 2022)

Theme	Recommendation
1. Attendance and accessibility	▸ Deliver sessions at a time that minimises burden of symptoms and consider number of sessions ▸ Engage with workplace and enable attendance for PwLC who are working ▸ Consider inclusion of 'in person' elements where possible ▸ Utilise the skills and knowledge of the MDT to address the multi system demand of LC
2. Content	▸ Combine MDT knowledge and current evidence base when designing VRP content ▸ Limit length of 'taught' programme content to between 20–30 minutes ▸ Introduce use of accompanying workbook for session ▸ Focus on key symptoms specific to population requirements ▸ Enable post session access to VRP content ▸ Included welfare rights ▸ Include information about current research
3. Use of digital technology	▸ Use a free to use video conferencing platform ▸ Provide IT support and access ▸ Monitor and include chat function within the group
4. Group dynamics	▸ Ensure introductions at the start ▸ Set 'ground rules' for use of webcams for participants and facilitators ▸ Use break-out rooms for peer discussion in larger groups ▸ Provide opportunity and facilitation for peer discussion
5. Individual dynamics	▸ Consider accessibility for those with specific needs, such as: hearing and visual impairment, those with language barriers and those from less well represented communities ▸ Invite partners, carers, or those of importance to programme participants
6. Self-management	▸ Include elements of interaction such as quizzes, self-reflection, practical exercises ▸ Include practical skills for self-management such as breathing techniques, fatigue management ▸ Acknowledge differing life situations such as: being parents, other caring responsibilities, employed/unemployed, age, menopause ▸ Include information on relapse of symptoms

Padros, et al 2017; Kneale et al, 2021), the concept of 'knowledge mobilisation' (Bannister et al, 2013; Vindrola-Padros et al, 2017) is familiar to many and aligned to the work reviewed above. Kneale et al (2021) describe the presence of embedded researchers as an opportunity to increase research capacity and capability to direct and produce research which meets the needs of a service. Indeed, the role is essential for facilitating high quality care and innovative practice (Addy et al, 2019), with change to practice more likely to be achieved by researchers who are embedded (Milne et al, 2019). The LLRCS currently employs two part-time CRFs, one district nurse and one physiotherapist. Their role is supported by the service clinical coordinators (clinical knowledge and service requirements) and clinical academic supervisors affiliated to a local university (academic association). This, alongside protected time for academic career development (Ferguson et al, 2021), provides significant opportunities for learning and development of research skills while conducting service development (Addy et al, 2019).

This role is also highlighted as important in the wake of the Covid-19 pandemic where all NHS services have been put under significant pressure (Kneale et al, 2021); with emphasis placed on promoting cost effectiveness and development of knowledge (Gee and Cooke, 2018). Having CRFs embedded within the clinical service provides insight that affects local stakeholders, allowing for contextual development and change (Vindrola-Padros et al, 2017). This is of particular importance in LC where the knowledge base is still being established, with a high patient demand in all 90 NHSE commissioned LC clinics (NHS, 2022).

Therefore, a service embedded CRF can act as an objective observer, with no clinical delivery role, thus reducing reporting bias and increasing critical reflexivity (staff and service evaluations). This may reduce the timescales required and enhance the quality of service evaluations. A CRF can focus on establishing whether interventions are acceptable and amplify the voice of PwLC, without prejudice. The LLCRS patient, carer and public involvement (PCPI) group provides a forum for NHS staff and service users to exchange ideas, provide feedback and co-produce local service development and innovative clinical research questions.

SUMMARY

The LLCRS 10-week VRP was generally well received by PwLC in terms of content, access to peer support, and capacity for internal change through education and validation of LC symptoms. There were some limitations to accessing sessions due to the Microsoft Teams link, digital literacy and conflicting information for those with pre-existing LTC. The service evaluation conducted by the CRFs within LLCRS, with support from experienced researchers with an interest in LC, allowed the voice of PwLC to be amplified and enabled best practice for developing the VRP, ensuring that this intervention was of value to PwLC.

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KEY POINTS

- Long Covid (LC) has placed additional and considerable demands on many NHS services.
- The most recent prevalence data identifies that there are approximately two million people living in the UK who self-report symptoms of LC, 77% of whom state their symptoms limit their daily activities.
- With increased wait times for assessment and access to treatment, and in the presence of activity-limiting symptoms common in LC, the Leeds Long Covid Rehabilitation Service (LLCRS) developed a group based virtual rehabilitation programme (VRP).
- The VRP aims to provide persons with Long Covid (PwLC) concepts on current thinking in LC, alongside self-management education and support.
- This service evaluation of the VRP allowed the voice of PwLC to be amplified and enabled best practice for developing the VRP, ensuring that this intervention was of value to PwLC.

Improving pressure area risk assessment and management for people living with dementia

Alison McGrath, Zena Aldridge

It is estimated that there are currently 944,000 older people living with dementia in the UK, and that 593,200 of those people are living with advanced symptoms. People living with advanced dementia have a significantly higher prevalence of pressure ulcers (PUs), compared to those living without dementia with similar comorbidities. The care and support required to prevent pressure ulcers in people living with dementia needs to be individualised, following a holistic and person-centred assessment of the person and their unique circumstances. An improved understanding of the increased risk and causal factors of developing pressure ulcers in high risk groups, such as people living with advanced dementia, can support practitioners to conduct a more through and person-centred risk assessment and management plan, including choosing the most appropriate products to meet a person's needs.

KEYWORDS:
■ Pressure ulcer prevention ■ Advanced dementia ■ Risk reduction
■ Risk assessment ■ Product selection

It is estimated that there are currently 944,000 older people living with dementia in the UK, and that 593,200 of those people are living with advanced symptoms, the total number of people living with dementia is set to rise exponentially to 1.6 million by 2040 (Wittenberg et al, 2019). While dementia is largely associated with old age, it is important to acknowledge that dementia is not a normal or inevitable part of ageing (Qui and Fratiglioni, 2018). Furthermore, it should be acknowledged that dementia is not only a condition of older age and that there are approximately 42,330 people below the age of 65 years who are living with the condition in the UK (Prince et al, 2014).

> **'The most common clinical complications which lead to death in advanced dementia are an inability to take on adequate nutrition and hydration and infections.'**

Dementia is an umbrella term used to describe a group of symptoms that are characterised by memory impairment, behavioural changes, and loss of cognitive and social functioning caused by neurodegenerative disorders (Qui and Fratiglioni, 2018). There are over 200 subtypes of dementia, with the most common being Alzheimer's disease, vascular dementia, Lewy Body disease, mixed dementia (usually a combination of Alzheimer's disease and vascular dementia) and frontotemporal dementia (Sandilyan and Dening, 2019).

ADVANCED DEMENTIA

Dementia is a life-limiting, progressive condition for which there is no known cure (Sampson and Harrison Dening, 2020). The progression of dementia is dependent on the type of dementia and any intercurrent comorbid conditions that a person living with dementia might have, with a suggested period from diagnosis to death varying from 3–10 years (Wattmo et al, 2014).

As dementia progresses to the advanced or severe stages, those affected experience significant cognitive and physical impairment (Moyle and O'Dwyer, 2012), and are likely to:

- Be urinary and faecally incontinent
- Unable to verbally communicate
- Experience reduced mobility
- Require support with all of their activities of daily living (ADLs)

(Kupeli et al, 2018).

The most common clinical complications which lead to death in advanced dementia are an inability to take on adequate nutrition and hydration and infections (Mitchell, 2015).

FRAILTY AND COMORBID CONDITIONS

People aged over 76 years who have a diagnosis of dementia or cognitive impairment are often frail (Kulmala et al, 2014). The presence of frailty is associated with poor health outcomes, yet there is often a lack of

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understanding that adverse events such as falls or an infection can trigger disproportionately negative changes and decline in the health status of frail residents due to their lack of homeostatic resilience (Barclay et al, 2014; Clegg et al, 2013; Clegg et al, 2015). There is a clinical link between frailty, weight loss, sarcopenia (the term for the loss of muscle with ageing) (Martin and Ranhoff, 2021), and skin fragility (Ferris and Harding, 2020). Consequently, with increased frailty there is a higher risk of developing pressure ulcers (PUs). Indeed, if an older patient with advanced disease and increasing frailty develops a deep full-thickness pressure ulcer, even with good care and adequate nutrition, it is unlikely to heal and can trigger terminal decline (Bowman, 2011).

COMORBID CONDITIONS

A study by Public Health England (PHE, 2019) identified that 77% of people living with dementia had at least one comorbid condition, with 44% of those people having a diagnosis of hypertension, 17–20% a diagnosis of diabetes, stroke, transient ischaemic attack (TIA), coronary heart disease (CHD), or depression, while 9–11% had a diagnosis of Parkinsonism, chronic obstructive pulmonary disease (COPD), or asthma. Moreover, it was identified that people living with dementia often have multiple health conditions, with 22% living with three or more comorbid conditions, and 8% with four or more comorbidities (PHE, 2019). A background of multiple chronic diseases and complicating factors associated with immobility, tissue ischaemia, and undernutrition contribute to the risks associated with a person with dementia developing pressure ulcers (PUs) (Jaul et al, 2018).

PRESSURE ULCERS

Pressure ulcers are defined as 'localised damage to the skin and/or underlying tissue, usually over a bony prominence (or related to a medical or other device), resulting from sustained pressure (including pressure associated with shear). The damage can be present as intact skin or an open ulcer and may be painful' (NHS Improvement, 2018a). National Institute for Health and Care Excellence guidelines (NICE, 2014) state that, 'pressure ulcers are caused when an area of skin and the tissues below are damaged as a result of being placed under pressure sufficient to impair its blood supply', and go on to suggest that 'typically they occur in a person confined to bed or a chair by an illness'. The aetiological mechanisms by which stress and internal strain interact with damaged skin and subcutaneous tissue resulting in pressure ulcer development include:

- Localised ischaemia reperfusion injury
- Impaired lymphatic drainage
- Sustained cell deformation

(Coleman et al, 2014).

Coleman et al (2014) suggest that the most prevalent direct causal factor increasing the risk of developing PUs in people living with neurodegenerative disorders is immobility. Indirect factors include poor nutrition, increased age, use of sedating medication causing decreased activity and oral intake, infection, falls with injuries and chronic wounds. A study by Mitchell et al (2009) identified that almost 40% of people living with advanced dementia developed PUs before their death. While another study by Jaul et al (2016) identified that people living with advanced dementia had a significantly higher prevalence of PUs, compared to people who had similar comorbid conditions but did not have dementia.

PRESSURE ULCER PREVENTION AND MANAGEMENT FOR PEOPLE LIVING WITH DEMENTIA

The care and support required to prevent PUs in people living with dementia needs to be individualised, following a holistic and person-centred assessment of the person and their unique circumstances. In the authors' clinical experience, using a systematic approach such as the ASSKING model (assess risk; skin assessment and skin care; surface; keep moving; incontinence and moisture; nutrition and hydration; giving information or getting help) (NHS Improvement, 2018b) and applying it to people living with advanced dementia enables preventive measures to be implemented where possible, and management strategies which can be evaluated and adjusted as required. This paper will now explore how the symptoms of advanced dementia, with or without the presence of intercurrent conditions, might impact a person living with the condition in the context of the ASSKING model (NHS Improvement, 2018b).

Practice point

Improved understanding of the increased risk and causal factors of developing PUs in high risk groups, such as people living with advanced dementia, can support practitioners to conduct a more through and person-centred risk assessment and develop a more robust management plan.

A — assess risk

Thorough risk assessment is fundamental in the prevention and management of PUs in any patient cohort (Balzer et al, 2014). Early identification of those at higher risk of developing a PU, such as those living with advanced dementia, can improve opportunities to ensure that a person is prescribed the most appropriate preventative care and equipment. NHS Improvement (2018b) recommends using the PURPOSE-T (pressure ulcer risk primary or secondary evaluation tool), (Coleman et al, 2018).

PURPOSE-T is a three-step assessment process which uses colour coding rather than a score to describe risk and help plan interventions:

- Step 1 considers mobility status, condition of the skin and clinical judgement. The outcome of this will then ascertain if step 2 is required
- Step 2 is the full assessment which considers independent movement, detailed skin assessment, any history of PU, medical devices, perfusion, sensory perception, moisture and diabetes

- Step 3 is a colour coding of risk based on assessment as either:
  - Green — no current risk
  - Amber — no PU but at risk
  - Red — PU or scarring from previous PU requiring secondary prevention/ treatment

(Coleman et al, 2018).

It is important to recognise that a person's risk factors can change as their condition deteriorates or improves. Therefore, risk assessment must be an ongoing, not singular activity. Those at higher risk require a more detailed assessment as described in step 2 of PURPOSE-T (Coleman et al, 2018), where an assessment of mobility should include all aspects of independent movement, including walking, ability to reposition or transfer. It is necessary when assessing a person with dementia to consider the impact of cognitive changes on their ability to mobilise, as well as any physical challenges or mobility issues they may have.

S — skin assessment and skin care

Advancing dementia can affect a person's ability to verbally communicate their needs effectively, including whether they are experiencing discomfort, wish to reposition themselves, or if they are in pain as a result of compromised skin integrity (Achterberg et al, 2019). Although common, pain is often left undetected and untreated in people living with dementia (Achterberg et al, 2019), with studies suggesting that around 60–80% of people with dementia living in care homes, and more than half of people living with dementia in the community experience pain (van Kooten et al, 2017; Achterberg et al, 2019).

People living with dementia who are experiencing pain may demonstrate behaviours such as apathy, pacing, agitation, aggression and verbal abuse, which can be misinterpreted as behavioural and psychological symptoms of dementia, as a result of being unable to communicate their needs verbally (van Dalen-Kok et al, 2015; Malara et al, 2016; Achterberg et al, 2019). This is not only distressing for the person, but can also increase their risk of shearing or injuring the skin if they becomes agitated (Le Blanc and Baronski, 2014). Therefore, in conjunction with risk assessment, ongoing skin assessment, skin care and frequent skin inspections are key both for PU prevention, and in establishing a person's current skin condition and identifying early signs of pressure or shear affecting their skin (Fletcher, 2019).

> **'Advancing dementia can affect a person's ability to verbally communicate their needs effectively, including whether they are experiencing discomfort, wish to reposition themselves, or if they are in pain as a result of compromised skin integrity.'**

S — surface selection

Given some of the risk factors, such as reduced movement and communication, frailty and comorbid conditions, people with dementia may have difficulty changing position without help, e.g. when they are transferring between bed to chair, or repositioning themselves while sitting or lying down. Since PUs occur when tissue is compressed between the bony prominence and an external surface, there is a need to pay particular attention to the surface a person is lying or sitting on, as well as other surfaces that are in contact with the skin, such as medical devices or equipment.

A support surface is defined as:

> *A specialised device for pressure redistribution designed for management of tissue loads, micro-climate, and/ or other therapeutic functions (e.g., any mattresses, integrated bed system, mattress replacement, overlay, or seat cushion, or seat cushion overlay).*
>
> (National Pressure Ulcer Advisory Panel [NPUAP], 2018).

When choosing an appropriate pressure-relieving surface for a person with dementia, it is important not only to consider the level of risk and current skin status, but also other features that may be appropriate to meet their wider needs. For example, a support surface with its immersion and envelopment properties will minimise any movement in comparison to alternating cell therapy, yet still be appropriate for use in high/very high risk patients, or perhaps a surface that is quiet/ can be silenced to avoid disruption or reduce distress as a result of heightened sensitivity.

The Carital® Optima is the first mattress to receive dementia design accreditation from the Dementia Services Development Centre (DSDC) at Stirling University, an internationally recognised centre for knowledge exchange and research impact dedicated to improving the lives of people living with dementia. The Carital Optima was assessed by the DSDC team, who were of the view that it is a much needed product that goes beyond the threshold of a 'dementia friendly' product, as it is essential in helping those who live with dementia to

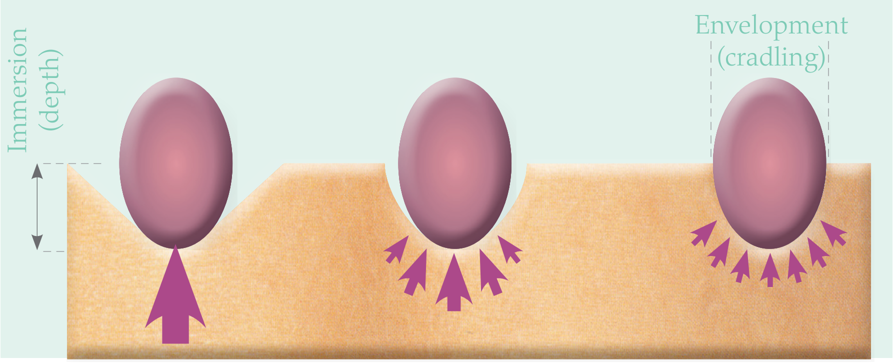

Figure 1.
Visualisation of the impacts of immersion and envelopment on pressure redistribution.

Product review

The Carital Optima support surface is designed to minimise the level of deformation to an individual's tissue while in the supine or seated position. It has little movement in the mattress, which benefits comfort and tranquillity. This is because the Carital Optima pump quietly adjusts the pressure in the open-air cell structure according to the patient's body weight, shape and position, and the formation of the tunnel formed upper cells reduce the risk of bottoming out, and the risk of tissue shear or friction. As a result, little change of position is required, which ensures less sleep disruption, and the quiet pump reduces the risk of causing disturbance to a person living with dementia. Furthermore, the minimum dynamic stimuli during rest and sleep contributes to a better day and night rhythm, which is often disturbed in people living with dementia (University of Stirling, 2022).

avoid the development of a PU (University of Stirling, 2022; www.directhealthcaregroup.com/carital-optima-given-dementia-design-accredited-product-status-by-dsdc/). It is appropriate for people who are at very high risk of developing PUs as it provides high levels of immersion and envelopment to reduce deformation of tissue.

The oval to the left of *Figure 1* demonstrates how the body can be immersed into a surface. Immersion is defined as the depth of penetration into a surface. The oval to the right on *Figure 1* demonstrates how a surface can envelop the patient and how this distributes the pressure and reduces deformation. Envelopment is defined as the ability of a support surface to conform around a person's body (NPUAP, 2018). It is noted that good envelopment is associated with low interface pressures and shear, as more of the body surface area is in contact with the support surface and the body weight loads are transferred more uniformly (Call et al, 2020; Call and Cheney, 2020). The larger the contact area for the load transfer, the smaller the localised cell and tissue deformations and tissue stress concentrations. A support surface that continuously provides good envelopment, regardless of a person's body characteristics and position, fulfils the primary requirement for being effective in PU prevention (Gefen and Soppi, 2020).

> **'People living with dementia experience many of the causative factors of functional incontinence and as a consequence are disproportionately affected compared to people without dementia.'**

K — keep patients moving

Regardless of what support surface a person living with advanced dementia is lying or sitting on, they will remain at risk of developing PUs if they do not change position or are not regularly assisted to move. Conversely, if people are moved excessively when they are distressed or restless, they are at increased risk of shear and friction injury (Young, 2021).

People living with dementia who remain mobile, but who may require some assistance, may benefit from a sit-to-stand aid, such as the ReTurn7500i (*Figure 2*) and ReTurnBelt to aid mobilisation. The use of a contrasting colour (red) for the frame in the former was a deliberate addition, as this can help a person with dementia and those with sight loss to be able to define objects more clearly (Bowes et al, 2016). Encouraging a person to complete a sit-to-stand will enable a short transfer, for example, from a chair to a commode, and can also promote tissue reperfusion, minimising the risk of PU development (Wywialowski, 1999).

People living with dementia with limited mobility who are utilising a hybrid or dynamic support surface system are likely to require repositioning and may, in the authors' clinical experience, benefit from a powered turning aid and/or positioning cushion. These systems gently support the person and those who care for them to facilitate repositioning and offloading to promote effective PU prevention.

When the person has successfully been repositioned, their body can be supported using positioning cushions, which can be adapted to various situations and conditions.

I — incontinence assessment and care

There is an increased prevalence of incontinence as dementia progresses to the advanced stages (Harwood and Cowan, 2021). Functional incontinence is associated with impaired cognition and is caused by immobility, disorientation, communication difficulties, or inability to find the toilet, rather than abnormalities of the brain (Aldridge and Harrison Dening, 2021; Harwood and Cowan, 2021).

People living with dementia experience many of the causative factors of functional incontinence and as a consequence are disproportionately affected compared to people without dementia (Byles et al, 2009; Gove et al, 2016; Aldridge and Harrison Dening, 2021). However, it should not be assumed that they are experiencing functional incontinence and incontinence should be appropriately assessed (Harwood and Cowan, 2021;

Figure 2.
Return 7500i patient transfer system.

Aldridge and Harrison Dening, 2021). Whatever the cause of any urinary or faecal incontinence, effective skin hygiene and promoting continence where possible are essential for skin health generally and will reduce the risk of PUs, associated dermatitis, and urinary tract infections (UTIs) (Kottner and Beeckman, 2015).

N — nutrition and hydration assessment and support

Poor dietary intake and weight loss are common in people with dementia and can occur during any stage of the disease trajectory (Aldridge et al, 2020). In the earlier stages, it may be as a result of attention deficits or poor memory, dyspraxia or agnosia (Brooke and Ojo, 2015; Aldridge et al, 2020). However, in the more advanced stages, problems relating to dysphagia may cause difficulties with coordinating chewing and swallowing, issues with transferring food bolus, or aspirating when swallowing (Candy et al, 2009; Brooke and Ojo, 2015). Furthermore, people with dementia may lose the normal physiological drivers of appetite due to changes in the hypothalamic function (Sampson et al, 2009; Minaglia et al, 2019; Aldridge et al, 2020). In end stage dementia, significant weight loss can occur, as a result of malnutrition, sarcopenia, anorexia, lethargy, altered immune function and cachexia (Minaglia et al, 2019; Aldridge et al, 2020) — factors leading to an increased risk of PU development. Thus, in the authors' clinical experience, support surfaces with immersion and envelopment properties are beneficial for people living with advanced dementia, who may be sensitive to alternating support surfaces following significant weight loss.

G — giving information

It is important to recognise that as dementia progresses to the more advanced stages, those affected are increasingly likely to have reduced mental capacity and verbal communication. As a result, where appropriate, family and carers should be involved and information should be provided in a number of ways, i.e. verbal and written and regularly reinforced (Bird et al, 2021).

CONCLUSION

People living with dementia, especially in the more advanced stages, are extremely vulnerable to pressure damage. Understanding the aetiology and risk factors associated with the development of PUs in people living with dementia and applying them to risk assessments can enable health and social care staff to prioritise risk reduction strategies and specific treatments, which can delay or even prevent the onset of PUs in this vulnerable patient cohort. This can have a direct impact on improving quality of life and promoting better outcomes for those living with the condition and those who care for them.

Health and social care professionals need to be aware of the often complex needs of people living with dementia and act as advocates to ensure that they have equitable access to appropriate equipment (e.g. pressure ulcer prevention mattresses and cushions, specialist seating and moving and handling aids) for long-term use across health and social care settings. This, in turn, will help to reduce the risk and improve management of pressures areas in people living with dementia. **JCN**

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Revalidation Alert

Having read this article, reflect on:

- Why people living with dementia have a higher risk of developing pressure ulcers
- How you undertake holistic and person-centred assessment of an individual and their unique circumstances
- Your access to appropriate pressure-relieving equipment.

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

Tool to improve communication and enable rapid identification of sepsis

Linda Nazarko

Use of the revised National Early Warning Score (NEWS) 2, a tool used to measure acute deterioration in hospital, is mandatory in acute NHS hospitals and ambulance services. Community staff who wish to escalate acutely unwell people to ambulance or acute services need to be able to use NEWS. This article outlines the uses and limitations of NEWS and how it can aid identification and escalation of people who are acutely unwell in community settings, including those with suspected sepsis.

KEYWORDS:
■ National early warning system ■ Assessment ■ Sepsis

Early warning scoring systems (EWS) were developed to enable hospital-based nurses and junior medical staff to recognise acute physiological deterioration and to use a trigger threshold to rapidly obtain experienced help.

EWS involve checking basic physiological signs at intervals. This is known as tracking and responding to abnormal parameters or triggers. EWS are known as track and trigger scoring systems. In the past, there were a number of EWS in use across the NHS. The National Early Warning Score (NEWS) was developed to provide a standardised system across the NHS and aimed to improve safety (National Confidential Enquiry into Patient Outcome and Death [NCEPOD], 2007).

NEWS was introduced in 2012 and its use was recommended in acute settings across the NHS (Royal College of Physicians [RCP], 2012). NEWS uses six physiological measurements:

- Respiratory rate
- Oxygen saturation
- Temperature
- Systolic blood pressure
- Heart rate
- Level of consciousness.

Each scores 0–3 and individual scores are added together for an overall score. An additional two points are added if the patient is receiving oxygen therapy. The total possible score ranges from 0 to 20. The higher the score, the greater the clinical risk. Higher scores indicate the need for escalation, medical review, possible clinical intervention and more intensive monitoring (*Table 1*).

Escalation triggers are scores of 3 in one parameter and scores that total 5 and 7. These trigger a clinical review, while a score of 7 or more triggers a critical care referral (RCP, 2012). *Table 2* outlines the advantages of a national early warning system.

REVISED NATIONAL EARLY WARNING SCORE (NEWS) 2

In 2017, a revised form of NEWS (NEWS2) was released (RCP, 2017). This measured the same six physiological measures. However, the recording of physiological parameters was reordered to align with the Resuscitation Council (UK) ABCDE sequence (Nolan and Soar, 2015). *Table 3* outlines how NEWS2 differs from NEWS.

INTRODUCING NEWS2 IN AMBULANCE SERVICES AND COMMUNITY SETTINGS

In 2017, NEWS was not in use across all acute hospitals; 65% of hospitals were using NEWS, 14% an adapted form of NEWS, and 20% another early warning system (NHS Improvement, 2019). All acute NHS hospital trusts and ambulance trusts were required to use NEWS2 by March 2019 (NHS England, 2018). Community staff are now using NEWS2 to assess a person's condition and to guide escalation and treatment decisions.

There is currently no robust evidence that NEWS is an effective assessment tool in community settings (NHS England, 2019). The authors of a systematic review of

Table 1: NEWS thresholds and triggers

NEWS	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response
Aggregate score 5–6	Medium	Key threshold for urgent response
Aggregate score 7 or more	High	Urgent or emergency response

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17 studies (157,878 participants) involving 16 ambulance services and one in a nursing home stated that NEWS should be used as an adjunct to clinical decision-making, rather than replacing it and recommended further research (Patel et al, 2018).

Community staff have expressed concerns that using the NEWS score will lead to people with long-term conditions being inappropriately escalated to accident and emergency departments. Scott et al (2019) obtained data from 115,030 emergency department (ED) attendances, 137,734 ambulance electronic records, 31,063 community attendances and 15,160 general practitioner (GP) referrals into secondary care. The authors concluded that high NEWS scores were reasonably uncommon, but stressed the need for further research to determine if thresholds for action escalation used in hospitals were appropriate in community settings (Scott et al, 2019).

IMPORTANCE OF STANDARDISED ASSESSMENT IN COMMUNITY SETTINGS

The UK population is ageing and increasing numbers of adults living in the community have long-term conditions (Kingston et al, 2018). Primary care and ambulance services are struggling with increased demand and diminishing resources (Hansard 2022; British Medical Association [BMA], 2023). There are many reasons why people deteriorate clinically and, in the author's clinical opinion, it is essential to have a standard language that enables healthcare professionals to communicate the severity of illness and any deterioration. While the NEWS score is not perfect, it does provide a common language. Indeed, using this to communicate can enable healthcare professionals to determine risk, communicate that risk, and escalate appropriately (Inada-Kim et al, 2020). The Academy of Medical Royal Colleges (2022) proposes that the updated NEWS (version 2, NEWS2) should be used to supplement clinical judgement to identify adult patients with suspected sepsis who are critically ill and need treatment quickly.

Table 2: Benefits of NEWS (RCP, 2012)

- Provides a standardised method to monitor deterioration and communicate this
- Improves the quality of patient observation and monitoring
- Improves communication within the multidisciplinary team
- Allows for timely admission to intensive care
- Supports good medical judgement
- Aids in securing appropriate assistance for sick patients
- Gives good indication of physiological trends
- A sensitive indicator of abnormal physiology

SEPSIS SCREENING TOOL PREHOSPITAL **AGE 16+**

PATIENT DETAILS:

DATE:
TIME:
NAME:
DESIGNATION:
SIGNATURE:

01 START THIS CHART IF YOU'RE WORRIED ABOUT YOUR PATIENT OR IF NEWS2 HAS TRIGGERED

ADDITIONAL FACTORS PROMPTING SCREENING FOR SEPSIS INCLUDE:

☐ Carer or relative concern
☐ Recent chemotherapy/ known to be neutropenic
☐ Evidence of organ dysfunction (e.g. lactate >2mmol/l)

YES

02 IS THIS LIKELY TO BE DUE TO AN INFECTION?

LIKELY SOURCE:

☐ Respiratory
☐ Brain
☐ Urine
☐ Surgical
☐ Skin / joint / wound
☐ Other
☐ Indwelling device

NO

SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

YES

CALCULATE NEWS2 SCORE USING LATEST VITAL SIGNS

03 IS NEWS2 7 OR ABOVE?

OR IS NEWS2 5 OR 6 AND ONE OF:

☐ Chemotherapy in last 6 weeks
☐ Other organ failure evident (e.g. no urine output)
☐ Patient looks extremely unwell
☐ Patient is actively deteriorating

Text

YES

RED FLAG SEPSIS

START PH BUNDLE

NO

04 IS NEWS2 5 OR 6?

OR IS NEWS2 1-4 AND ONE OF:

☐ Chemotherapy in last 6 weeks
☐ Other organ failure evident (e.g. no urine output)
☐ Patient looks extremely unwell
☐ Patient is actively deteriorating

YES

FURTHER ASSESSMENT & REVIEW REQUIRED:

- TRANSFER TO DESIGNATED DESTINATION
- COMMUNICATE POTENTIAL RISK OF OF SEPSIS AT HANDOVER

NO AMBER FLAGS OR UNLIKELY SEPSIS: ROUTINE CARE - CONSIDER OTHER DIAGNOSIS - SAFETY NET & SIGNPOST AS PER LOCAL GUIDANCE

PREHOSPITAL SEPSIS BUNDLE:

RESUSCITATION:

Oxygen to maintain saturations of →94% (88% in COPD)
250ml boluses of Sodium Chloride: max 250mls if normotensive, max 2000ml if hypotensive

COMMUNICATION:

Pre-alert receiving hospital
Divert to ED (or other agreed destination)
Handover presence of Red Flag Sepsis

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Figure 1.
NEWS2 chart.

WHAT IS SEPSIS?

There are two established definitions. The lay definition, also known as the Merinoff definition:

> *Sepsis is a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.*
> (Czura, 2011)

The professional narrative definition of sepsis, also known as Sepsis 3, is:

> *Sepsis is characterised by* a life-*threatening organ dysfunction due to a dysregulated host response to infection.*
> (Singer et al, 2016; Daniels and Nutbeam, 2022: 14)

Table 3: How NEWS2 differs from NEWS

- Restructured to align with ABCDE assessment
- Colour coding has been changed due to concerns about colour blindness
- NEWS2 chart includes two sections for recording oxygen saturation: scale 2 is a new section on the chart for patients in whom the target oxygen range is set at 88–92%
- Introduction of new confusion (or delirium) as a sign of clinical deterioration
- The actual measured value for each physiological parameter should be recorded on the chart
- Dedicated sections to record the frequency of monitorings
- Removal of additional parameters that were not part of the NEWS score — blood sugar, urine output and pain score
- Removal of inspired oxygen percentage
- Addition of the device for oxygen delivery and the rate (litres/min)

Precise numbers of people who develop sepsis in the UK are unknown. There are thought to be between 200,000 to 918,000 episodes of sepsis in adults each year, and around 48,000 deaths. Indeed, sepsis claims more lives than breast, bowel and prostate cancer combined (Academy of Medical Royal Colleges, 2022).

Sepsis can be difficult to diagnose and delayed diagnosis and treatment is associated with poor outcomes (National Institute for Health and Care Excellence [NICE], 2017). Many people who develop sepsis have underlying medical conditions, and a significant proportion are frail or approaching the end of natural life. Prompt diagnosis enables clinicians to prevent avoidable deaths and to provide appropriate care for people at end of life (NICE, 2017).

WHO IS AT RISK?

Although anyone can develop sepsis, certain groups of people are at increased risk. Adults over the age of 75, those who are frail, and those who have impaired immune systems are at particular risk (NICE, 2017). People who are likely to have impaired immune systems are those taking long-term steroids, have diabetes, and those with sickle cell disease. People taking immunosuppressant drugs to treat non-malignant disorders, such as rheumatoid arthritis, and those having chemotherapy are also at risk (NICE, 2017). Other at-risk groups include those who:

- Have a breach in the body's defences due to a medical device, such as an indwelling urinary catheter, an intravenous cannula, or a gastrostomy tube
- Have had surgery, or other invasive procedures in the past six weeks
- Inject drugs intravenously
- Have wounds, including chronic wounds

(NICE, 2017).

COMMON INFECTIONS PRECIPITATING SEPSIS

Certain infections, such as pneumonia, are more likely to trigger sepsis than other infections. *Figure 2* illustrates this.

WHEN TO SUSPECT SEPSIS

Healthcare professionals, including community nurses, should suspect sepsis if the NEWS score is elevated. A NEWS score of 7 or more should trigger an immediate sepsis screen. In addition, a score of 5–6 and the person looks very unwell, is deteriorating clinically, has no urine output or has had chemotherapy in the last six weeks should prompt a sepsis screen (NICE, 2017). Even if the NEWS is normal, if the nurse is clinically concerned, a sepsis screen should be carried out (NICE, 2017).

HOW TO ESCALATE

The pre-hospital sepsis screening tool (*Figure 1*) can also be used (Daniels and Nutbeam, 2022) both in community settings and by ambulance services. The tool enables the nurse to clearly communicate the potential risk of sepsis and the need for urgent transfer. This can help hard-pressed emergency services to prioritise urgent transfer and be potentially life-saving. The patient story below illustrates its use.

CONCLUSION

Community nursing has changed a great deal in recent years. Government policy to provide care in community settings rather than care homes has combined with an ageing population to increase acuity within the community. Community nurses are now caring for greater numbers of people discharged from hospital postoperatively, as well as those with long-term conditions. People living at home now have greater levels of frailty and potential

Mrs Wilson's story

Mrs Anna Wilson had recently had a hip replacement and so Alice, a community nurse, visited her at home to remove clips. Mrs Wilson's daughter was with her mother. She reported that her mother had called her and said she felt really ill and thought she might die. This sense of impending doom is commonly reported in people with sepsis. Alice completed a NEWS score and found it was 7 due to a high temperature, elevated heart rate and low blood pressure. Mrs Wilson looked unwell and appeared to be deteriorating in front of Alice's eyes.

Mrs Wilson's daughter had already called an ambulance but the operator was not able to give a precise time as the service was very busy. Alice screened for sepsis and found that Mrs Wilson was scoring positively. Alice was able to call the ambulance service, update them on Mrs Wilson's condition, and request an urgent transfer. Mrs Wilson was transferred to hospital, treated for sepsis and recovered. The assessment and appropriate escalation may well have saved her life.

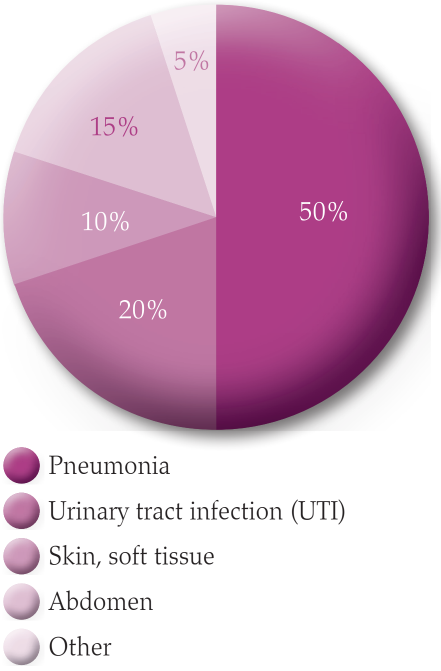

Figure 2.
Common infections precipitating sepsis (adapted from Daniels and Nutbeam, 2022).

for acute deterioration than in the past.

NEWS2, when combined with sepsis screening, can aid identification of sepsis in the community. This can save lives and improve outcomes. Although the NEWS2 tool was not designed for community use, it can complement clinical assessment. However, further work should be undertaken to determine how it can be best used, or adapted for use, in the community setting. **JCN**

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Revalidation Alert

Having read this article, reflect on:

- Why sepsis screening is important
- Your knowledge of NEWS2 and how it can be best used
- When sepsis should be suspected.

✓ 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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