JOURNAL OF GENERAL PRACTICE NURSING
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How to navigate ethical dilemmas

QNI and Marie Curie call for a new deal for end-of-life care

Physical activity and the menopause

Gout: underdiagnosed and undertreated

Vaccines for adolescents and young people

Peak flow monitoring

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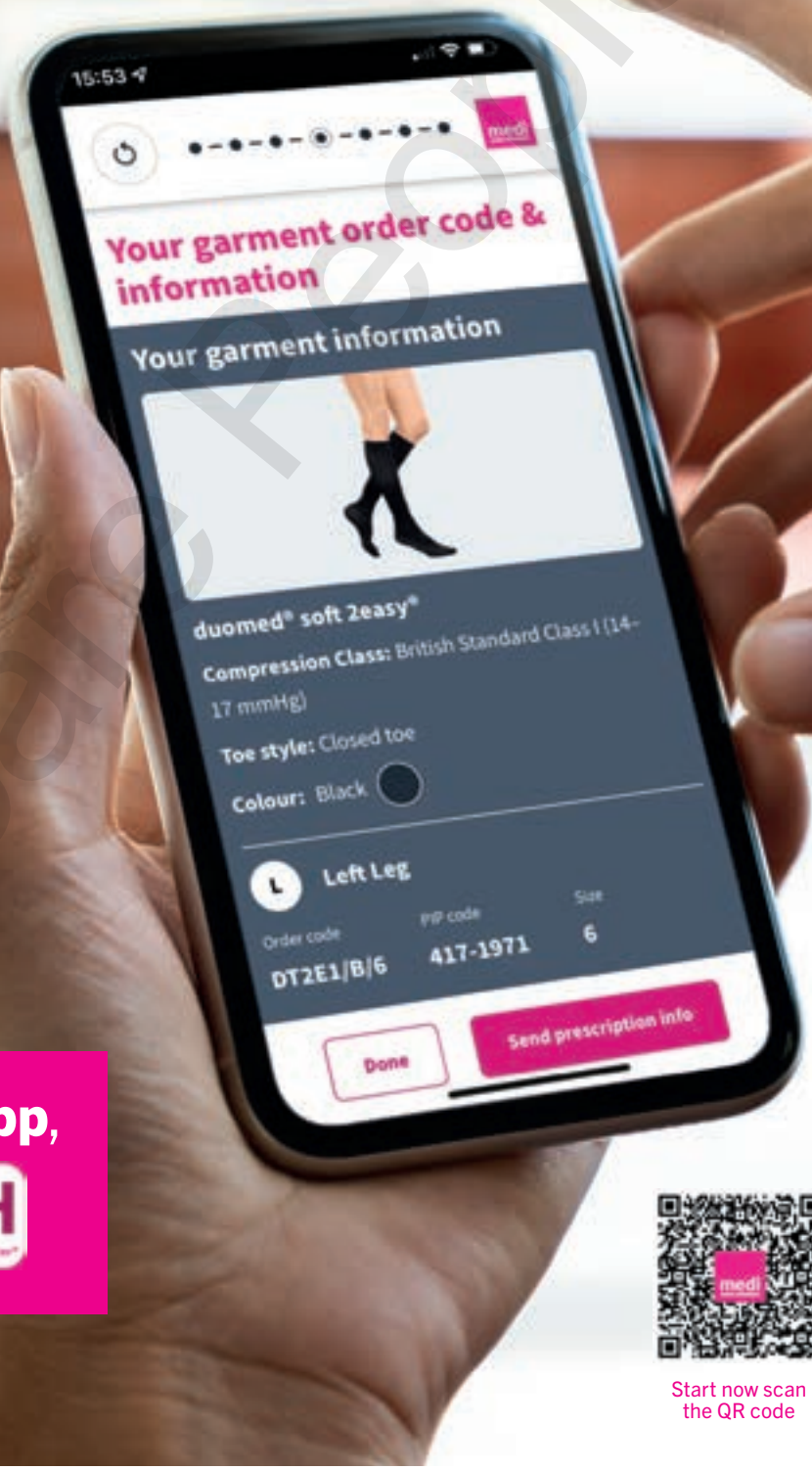

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Celebrating the journal's 10th anniversary

It is exciting to celebrate the 10th anniversary of the *Journal of General Practice Nursing*, to reflect on how far the journal has come and be part of its development for the future. I first wrote for the journal in February 2016, looking back it's a passionate article about the importance of our role in facilitating lifestyle change and health promotion. It still rings true today and maybe has helped me to not feel cynical about the tidal wave of preventable disease we face in our daily work. We can't win everyone over to a healthier lifestyle, but where we are successful it is so rewarding for us and life changing for the individual. Supporting each other to deliver best practice and find new ways to help the populations we serve is vital and I believe that this journal and its online resources is a key part of helping us achieve this. When our new asthma guidelines come out later this year, I hope to be commissioned to write an article on how they work for me in clinical practice — what could you write about and share with our readers? I would love to hear from you. There is something very special about seeing and sharing your work and ideas in print.

As the journal celebrates its 10th birthday, it is established as far more than just a print resource. Facebook Live events provide some excellent CPD online education, the resources search on the website can quickly help you find the information you need, the E-learning modules can bring you up to date with a range of wound care issues, and there are some great resources for understanding wound care products in practice — very helpful, if like me, it's not something you are involved with every day.

Last week I had the privilege of being able to sit down with Susan Brown, advanced nurse practitioner/general practice nurse, and discuss in depth the practical application of her article on heart failure in primary care from the December 2023 issue of the journal. This was a fantastic opportunity for me to explore how this enhanced understanding of heart failure can be applied in my general practice clinics. I am now much more aware of the need to use the BEAT acronym in my assessments and where to look for information on titrating medication. I am also more aware of those at risk of heart failure and my role in helping to prevent further complications. This video podcast will be available for you to watch soon. I hope you enjoy it.

As well as some excellent 'must read' clinical updates in this issue, such as gout, frailty and dementia, the place of reliever inhalers, and a helpful coaching article, the 'Practice matters' feature helps us reflect upon how we navigate ethical dilemmas and the skills needed to manage them. Compassionate care is such an important aspect of our role where we seek not to judge a person's decisions but to explore, understand and where possible negotiate an improvement in health.

Please write in to share what you have found helpful in our journal and to suggest topics for future articles, podcasts, training resources, or other ideas.

Jaqui Walker, editor-in-chief

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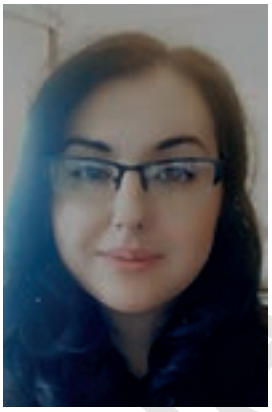
My passion for education has given me such an amazing general practice nursing career. To be invited to become a member of the editorial team for the *Journal of General Practice Nursing* provides the opportunity to contribute to a journal with high standards and vision. This comes at a particularly challenging time for all staff working in primary care; embracing new ways of working in response to the Covid-19 pandemic. Education is what drives good clinical practice; the characteristic adaptability and resilience demonstrated by staff is founded on sound principles. It is a privilege to be part of the editorial board, contributing to the strategic commitment of enabling access to educational material, which is contemporary, relevant and valued.

Julie Lennon

I am thrilled to be part of the editorial board. To contribute to the content and review work by inspiring authors is an exciting opportunity. Most of my nursing career has been within primary care. I have worked with many GPN colleagues to assist in providing education, training and service improvement projects within the field of wound care. At present, the challenges that GPNs face are immense and this journal is a fantastic arena to offer support, education and share experiences and best practice.

Kirsten Mahoney



I am delighted to have been invited to represent the *Journal of General Practice Nursing* editorial board. It is a privilege to review and contribute to the work of our incredible colleagues and authors. As a primary care pharmacist, I work closely and collaboratively with experienced general practice nurses (GPNs) and understand and appreciate the dedication, compassion and diverse skill mix GPNs bring to the multidisciplinary team. In these uncertain times, when the challenges and pressures faced in primary care and the health service as a whole are unprecedented, it has never been more imperative for us to keep up to date with current best practice and to be proactive in developing interprofessional relationships to support the delivery of high-quality patient care. I feel the journal is an excellent resource to promote evidence-based, person-centred care across the multidisciplinary team, and I look forward to supporting the up and coming content.

Caroline McIntyre

I am thrilled to join the editorial board. I am passionate about improving quality of care across primary care. I enjoy acting as a change agent in general practice to improve patients' experiences and always strive to ensure that high quality, person-centred care is achieved. I am excited to be able to share ideas and discuss topics imperative to our role with like-minded healthcare professionals.

Cheryl Crawford

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How to navigate ethical dilemmas

Ethical dilemmas are often faced by GPNs and so having the resilience and emotional intelligence to ensure that you are always working within your scope of practice and code of conduct is vital in these cases. This article implores GPNs to feel reassured that there is no right or wrong answer, and that evidence-based decision-making is key for GPNs to feel comfortable with their assessment and management of difficult situations. It also highlights the most common causes of ethical dilemmas, i.e. working to often extreme time pressures with short staffing levels. GPNs need to recognise that time management should not exclude the requirement to manage these often lengthy dilemmas, and that by working with your team support can often be found. Whether clinical, emotional or psychological, all GPNs can feel solace in following their NMC code and remembering that their aim is to improve patient care.

Callum Metcalf-O'Shea
UK professional lead for long-term conditions, Royal College of Nursing

For most people, workplace ethical dilemmas involve relatively little soul-searching. Should they tell the boss that they used the company credit card to buy her birthday present on expenses? Is it wise to let their line manager know that he ought to invest in some deodorant? And do they really need to tell HR that Darren from accounts tried to kiss them at the Christmas party?

Of course, all of these scenarios might involve some degree of personal embarrassment, not to mention professional risk. However, when it comes to the day-to-day work of general practice nurses (GPNs), ethical dilemmas involving patient care can have very real implications, and even result in life-and-death decisions.

Here, we examine what exactly constitutes an ethical dilemma in general practice nursing, and what action you might take if you're unlucky enough to be confronted with one.

HOW DO ETHICS APPLY TO NURSING?

In general, ethics represent the moral principles that dictate how an individual conducts themselves and treats others. Ethical principles are essential for healthcare workers whose role is to care for all types of people in all kinds of challenging circumstances. However, personal ethics are particularly relevant in nursing due to nurses' role as direct caregivers ('What is the nursing code of ethics?' — nurse.org).

In the UK, the Nursing and Midwifery Council (NMC) Code does not mention ethics specifically, but it does set out the standards of professionalism and conduct required for nurses to practice, which is based on four themes — prioritise people, practise effectively, preserve safety and promote professionalism and trust ('The Code' — www.nmc.org.uk).

"Ethical principles are essential for healthcare workers whose role is to care for all types of people in all kinds of challenging circumstances.

Underpinning these professional standards are commonly held ethical principles. For GPNs, understanding these principles will help them come to better clinical decisions, navigate any ethical dilemmas with patients and colleagues, and most important of all, stay out of trouble.

The four main healthcare ethical principles that GPNs need to be familiar with are ('Nursing code of ethics, and its ethical principles — an explainer' — nursesgroup.co.uk):

- Non-maleficence — the principle that healthcare workers should strive to do no harm, or in other words choose actions that inflict the least amount of harm to achieve the desired clinical outcome. The nurse practising non-maleficence should prioritise the patient's safety at all times, considering their best interests in any care decision
- Beneficence — requires the nurse to always consider the 'good' of the patient and take actions that benefit them. Beneficence requires that the

Beneficence versus autonomy — refusal for a patient to adhere to best practice treatment can be both challenging and frustrating for GPNs and brings up many ethical dilemmas. For example, in the case of a patient with a venous ulcer who does not wish to wear compression therapy or a patient with a pressure ulcer who does not want to comply with repositioning or pressure-relieving aids. Here, the GPN knows that the science behind compression therapy or pressure relief can facilitate healing, however the patient may feel that the treatment prescribed may inhibit their lifestyle or cause further discomfort, or other reasons that are important and very individual to the patient. It can be easy to feel that these patients may not be worthy of a precious appointment when there are so many patients who need appointments that may be less challenging. While nurses have to respect patient autonomy, ensuring that individuals have the right information to make the decision not to comply is equally important. I have had many patients, especially with venous leg ulcers, who come to our service and have no idea what causes a venous ulcer and why compression therapy is so important. This is often a reason for non-compliance. Sometimes it's about understanding the reason for non-compliance and having a non-judgemental approach. Giving the patient enough information about their condition and discussing different choices of treatment that may better suit their lifestyle is of paramount importance and can assist in shared decision-making.

Non-maleficence — do no harm. Often leg ulcer care has been highlighted as being substandard across healthcare settings with poor assessments, variations in practice, and lack of evidence-based care being cited as reasons for suboptimal healing rates. As a GPN, there is much pressure to be skilled in many areas of health care. It can be very easy to see a patient with a leg ulcer for many weeks without undertaking a holistic assessment. This may result in not instigating treatment such as compression therapy because there may not be enough time to undertake a full assessment, or there is sometimes a fear factor of instigating a treatment (such as compression) if skills and knowledge are lacking. Failure to deliver optimal care may result in longer healing times, poor quality of life, and can be considered as patient harm. Ensuring that GPNs have the skills to undertake holistic patient assessment and deliver evidence-based care should be a priority. Recognising your limitations and referral to an appropriate service should be considered if the GPN does not have the skills, so that correct treatment can be started as soon as possible, which, in turn, reduces the risk of patient harm.

Another area which may result in ethical dilemmas and possible patient harm is the delegation of wound care to a junior nurse or non-qualified member of staff, who lacks the skills to undertake the task. When delegating tasks relating to wound care, it is important that GPNs understand that they are accountable, recognise the limitations of the person to whom they are delegating the task and ensure that they are able to undertake it safely. Aspects that need to be considered include:

- *Does the person completing that task understand what is being asked of them?*
- *Are they competent to undertake the task?*
- *Have they got the knowledge to escalate any concerns, such as wound infection, deterioration in the wound, allergy to a dressing, increased pain or exudate?*
- *Has the GPN given clear instructions and devised a patient care plan to follow?*

To ensure that the person being delegated the task is competent, ongoing assessment and monitoring of their skills is required. Of course, as with any task that is being delegated, regular assessment of the patient and the wound is a requirement of the qualified GPN to monitor the progress of the wound and ensure that the treatment plan remains appropriate and reflects the needs of the patient and the wound environment. Delegating to a person who is unable to undertake the task safely and within their sphere of competence can result in patient harm .

Kirsty Mahoney
Senior tissue viability nurse specialist, operational programme lead, Welsh Wound Innovation Centre (WWIC); honorary lecturer, Cardiff University

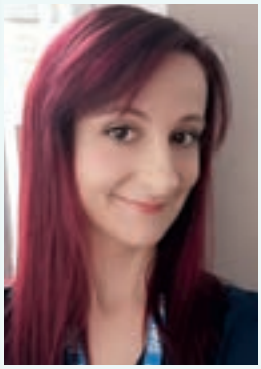
nurse should act with compassion and attempt to understand the patient's individual value system and wishes
- Autonomy — this can be understood as the patient's right to have choices in any decisions regarding their care. For nurses, this involves making sure that patients have the necessary information to make decisions about treatment based on their beliefs and values. Importantly, autonomy applies even if the patient's wishes contradict those of the nurse
- Justice — this principle dictates that the nurse should apply fairness in any treatment decisions or care. This means applying the same level of care quality and professionalism to all patients, irrespective of factors such as financial circumstances, social status, gender, race, religion, or sexual orientation.

WHAT IS AN ETHICAL DILEMMA?

Essentially, an ethical dilemma forces you to choose between being honest and dishonest, or between what you know to be 'right and wrong'. As a GPN, you might face an ethical dilemma when asked to perform a task that contradicts your moral or religious code. In essence, an ethical dilemma results in a conflict between two courses of action that may both be interpreted as 'correct', but involve a clash of principles or values.

In your day-to-day work, you may be confronted with any number of ethical dilemmas, all of which can test your character, professionalism and ability to put the needs of the patient above your own opinions and values ('Why ethics in nursing matters' — www.nursingworld.org).

Examples of common ethical dilemmas you are likely to come across in your work as a GPN include ('20 common examples of ethical dilemmas in nursing and how to deal with them' — www.nursingprocess.org):
- A patient refusing treatment that you believe to be necessary
- Being asked to perform a nursing task or administering a treatment that contradicts your cultural or religious beliefs
- When you witness one of your colleagues being incompetent
- When inadequate staffing means that you and your colleagues cannot provide appropriate care
- Where patients or their relatives have to make life or death treatment decisions.



Ethical dilemmas can often occur for GPNs. As this article accurately states, GPNs are managing more increasingly complex cases in tight time constraints throughout one shift. Patient expectations sometimes do not match our clinical decision-making, which can make for a difficult consultation. I am finding more and more that managing expectations of the patient and/or their family or caregivers in busy clinics can be a real challenge.

However, taking the extra time to explain things in greater detail and discussing the pros and cons of options with patients can be massively helpful, and usually always results in a good outcome of the consultation, with the patient fully understanding why I am recommending a new inhaler or medication to manage their chronic conditions, for example. The downside of this is then running late in clinics some days, which is never ideal. Many of my colleagues report the same difficulty, but taking the extra time to discuss things usually always helps the patient to feel more in control of the consultation, while I am still able to recommend the best course of action for their care without it feeling forced on them. The power of good and effective communication cannot be under-emphasised. Our NMC Code ensures that knowledge and understanding of ethics underpins a great deal of day-to-day practice to ensure that we do the best we can for patients at all times. As challenging as this may be at times, it is at the heart of nursing training to do no harm, show compassion, and practice autonomously with our patients' best interests at the forefront of everything we do.

Cheryl Crawford
Practice sister, South Beach Medical Practice, Ardrossan

THERE IS NO RIGHT OR WRONG

A typical ethical dilemma for GPNs recently might have been the case of a parent who refused to have their child vaccinated against Covid-19, even though the child had a preexisting medical condition such as diabetes. The parent may have insisted that vaccinating their child was a violation of their rights. For the nurse, the dilemma would lie in their knowledge that protecting the health of the community involves vaccination against preventable diseases, but also that the parent has a right to choose which treatment to give their child ('NHS expands Covid vaccinations to the most vulnerable 5 to 11 year olds' — www.england.nhs.uk). In this case, the nurse may have tried to persuade the parent to vaccinate by relying on scientific evidence and emphasising the low risk of side-effects versus the need to protect the community. They might also have cited the need to protect vulnerable adults, such as grandparents or teachers ('The pros and cons of giving Covid vaccines to UK children' — www.guardian.co.uk).

Another thorny ethical dilemma

This is a lovely article highlighting the wide range of ethical dilemmas that so many clinicians face every day in primary care — people declining treatment, wanting interventions that are not indicated (and would potentially reduce the capacity and funding for other indicated treatments to take place), and our duties around clinicians where there is a concern about the care provided. There is also our duty to alert the health service to understaffed/funded care areas (and how often should we do this?). If I could add one tip that wasn't covered in the article — and has helped me and I suspect many of us over the years. Ethical dilemmas are not the responsibility of us as an individual clinician (GPN or like me a GP), we have colleagues to test our thinking across healthcare systems, as well as medical legal advisors to which we all have access. If you are uncertain, call a friend (or more than one and involve the team). We often make better ethical decisions after discussion than alone.

Steve Holmes
GP Park Medical Practice, Shepton Mallet, PCRS executive, faculty chair, Severn RCGP

for GPNs might be presented by end-of-life care. A typical scenario might involve a patient with a terminal cancer diagnosis refusing life-prolonging treatment against the medical team's advice and the wishes of their family. In this situation, although the nurse's primary duty is to the patient and their right to choose, the pressure from family and colleagues to recommend treatment can be hard to resist. However, if the patient has mental capacity, their right to refuse treatment must be respected ('Dealing with ethical and moral dilemmas'— www.journals.rcni.com).

Inadequate staffing or resources can also present GPNs with ethical challenges. One common dilemma for GPNs revolves around the balance between providing comprehensive care for patients and the competing time pressures exerted by the volume of patients wanting to be seen. GPNs sometimes have to weigh-up whether they can spend as much time as they might like with a complex patient, with one report highlighting how practices are dealing with 'unsustainable workloads, managing intensely complex cases at speed' ('General practice nurses feel "invisible, stressed, and anxious", MPs told'— www.nursinginpractice.com).

On a more clinical level, GPNs might experience ethical challenges when providing lifestyle advice for patients who are generally healthy but obese. In this case, the dilemma lies in whether the GPN should risk offending the patient by pointing out that their weight may contribute to future health issues, or protect the therapeutic relationship they have by skirting the issue ('Tackling obesity: the challenge of obesity management for practice nurses in primary care'— academic.oup.com).

Another challenging clinical dilemma can arise for GPNs who may be asked about contraceptives by a girl aged under 16 years. This situation brings up a range of ethical issues, not least how to negotiate the conflict between patient confidentiality and parental rights, and it is important that the nurse understands the legal issues involved, such as 'Fraser guidelines' ('Gillick competence and Fraser guidelines explained'— www.themedicportal.com/blog/gillick-competence-and-fraser-guidelines/).

HOW TO NAVIGATE AN ETHICAL DILEMMA

When faced with an ethical dilemma, you may find it useful to fall back on the basic ethical principles of healthcare when making any decision — non-maleficence, beneficence, autonomy and justice. It is also important to remember that the patient's wishes may override your own view of what is 'right or wrong' in any situation. However, if these principles do not help, there are also some key ethical messages that can make your decision clearer, including ('What are the key messages for ethical decision-making?'— www.macmillan.org):

- If in doubt, the nurse should always make decisions based on the latest evidence-based information
- Always consider the patient's personal preferences and best interests
- Open communication, transparency and including patients and their relatives in any decisions should be at the heart of any care or treatment
- Always try and consider your motives for any treatment decision and whether they represent the patient's best interests, as well as being clear about the consequences of your decision
- Remember that ethical principles will not offer a clear-cut answer to your ethical dilemma, but can provide a framework to help you clarify and justify your decisions.

Day-to-day general practice nursing is fraught with dilemmas involving patient care and resource allocation, and it is important to remember that you will not always get every difficult decision right. It is also true that ethical dilemmas in nursing can be more serious than simply deciding which of your least favourite colleagues to put on-call over Christmas and New Year. However, by familiarising yourself with the principles of healthcare ethics and by following the basic tenets of the NMC Code, you should be able to find a solution to most challenges. And, if in doubt, just remember why you went into nursing in the first place — to do what's best for your patients. GPN

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New report acts 'as a catalyst for much-needed transformation in how we care for people at the end of life'

QNI and Marie Curie call for a new deal for end-of-life care

A new report on palliative and end-of-life care in the community has been published by the Queen's Nursing Institute (QNI) and Marie Curie.

The report by the two charities is based on a national survey of health and care staff undertaken in 2023. The majority of survey respondents were community nurses. The findings reflect how palliative and end-of-life care is delivered today, and shines a light on the challenges being faced by nurses. People at end of life need high-quality holistic care and support but worryingly, 9 out of ten respondents to the survey reported being unable to meet the needs of the people they care for, or those close to them, at least in part.

The survey was inspired by a similar project by the two charities in the early years of the National Health Service, 70 years ago, which was very influential in the development of the hospice movement. Despite huge advances in medicine and care delivery since that time, services are still hampered by many of the same social and economic ills as in the 1950s, and by a lack of resources.

Dr Crystal Oldman CBE, the QNI's chief executive commented:

Nurses working in the community know that they have 'only one chance to get it right' when it comes to end-of-life care. Working with families is at the very heart of community nursing but as this report highlights, many frail older people are living alone. Having the right resources in place, alongside careful advance planning, are absolutely critical. If not properly resourced, there are huge risks inherent in services' capacity and capability to deliver high quality palliative and end-of-life care.

Community nurses are the expert coordinators who manage this care, but there are simply not enough of them to meet the needs of everyone in our communities. District nursing was conceived as a universal service, but it is struggling to meet the growing demand of an ageing population. It is absolutely essential that more resources are allocated if we are to avoid the tragedy of unmet palliative and end-of-life care needs.

Healthcare provider organisations are well aware of the challenges they face, and community nurses have continued to manage ever larger and more complex caseloads, and they deserve admiration and praise for that. But this way of working is not sustainable for nurses, the individuals and families served or for the system as a whole. Palliative and end-of-life care services should be properly resourced, for everyone, when they are in time of need. In the same way that we need specialist and fundamental care at the beginning of life, palliative and end-of-life care is a service that nearly every citizen will need one day.

Matthew Bradby, head of communications, Queen's Nursing Institute (QNI)

The report makes four main recommendations:

- A new funding solution for hospices, and palliative and end-of-life care
- A national palliative and end-of-life care strategy, supported by a delivery plan, in every nation of the UK
- An end to poverty among people at the end of life
- A new deal for families and carers of people living with a terminal illness.

As part of its objective to support and improve care for those at the end of life, the QNI has published new Standards for Palliative and End of Life Care. Universities are invited to map their specialist practitioner qualifications (SPQ) to the new standards. For more information, visit: https://qni.org.uk/nursing-in-the-community/standards/

Dr Oldman also called on politicians to take note: 'The evidence presented in this report should be a wake-up call for politicians of all parties. The extent to which our politicians are prepared to support the recommendations in this report might be seen as a measure of our respect as a society for human life.'

The QNI would like to thank all community nurses who contributed to the survey. GPN

More information

To download the new report, '70 Years of End of Life Care in the Community', go to: www.mariecurie.org.uk/globalassets/media/documents/policy/policy-publications/2023/1952-report-final.pdf .

Giving confidence to treat hard-to-heal wounds

Ali Hedley, Medical and Professional Affairs Manager, UK, Mölnlycke

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In order to instil confidence in your patients, you yourself need to feel confident in the care you're providing — including the products you use.

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Exufiber® is a gelling fibre dressing with Hydrolock® Technology for use on highly exuding wounds. It also helps to support autolytic debridement by forming a soft, conformable gel on the wound bed. Hydrolock Technology means that Exufiber® stays intact when wet, without the need for further reinforcement, making it easy to remove in one piece during dressing changes.

RESULTS

The results show:

- Wounds treated with Exufiber® showed a trend of a greater percentage of reduction in wound size than those of the market leading gelling fibre dressing
- Clinicians reported a significantly greater percentage of 'very good' ratings for Exufiber® with regard to dressing features and technical performance, when compared to the market leading gelling fibre dressing.

EXCESSIVE EXUDATE IS ONE OF THE BIGGEST CHALLENGES WITH HARD-TO-HEAL WOUNDS

Chronic wounds, such as leg ulcers, often produce an excessive volume of exudate. If not managed appropriately, this can lead to maceration of the surrounding skin and in some cases accelerate wound infection, which lengthens healing time.

For community nurses, managing exudate in an appropriate, sensitive manner is an essential part of managing the symptoms of your patient's wound and can also help to provide them with the best possible healing environment.

WHAT THE RESULTS MEAN FOR YOUR PATIENTS

The study compared the results of one group of patients treated with Exufiber® dressings and the other with the market leading gelling fibre dressing. Specifically, the study compared wound area reduction over time. It also asked the treating clinicians to evaluate both products' features and technical performance. Clinicians reported that Exufiber® demonstrated a:

- 52% increase in terms of the ability to absorb exudate
- 53% increase in ability to retain exudate
- 29% increase in ability to retain blood and slough.

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Regular physical activity during menopause can help women navigate this stage of life

Physical activity and the menopause

This clinical skills series — **Think menopause** — looks at menopause-related issues to help general practice nurses (GPNs) identify, assess and manage women whose day-to-day lives may be detrimentally affected by this stage in their life. Here, Sue Thomas, advanced nurse practitioner (ANP) based in Leamington Spa, looks at physical activity and the menopause. Sue is also the founder of a local menopause support charity, Action Menopause Warwickshire, which is free for ladies to attend (https://actionmenopausewarwickshire.org.uk/).

According to the World Health Organization, we should all be aiming to do at least 150 minutes of moderate (or 75 minutes of vigorous) physical activity each week (WHO, 2022). These can be differentiated by the 'talk test', which is the ability to be able to talk but not sing indicating moderate intensity activity, while having difficulty talking when doing more vigorous activity (UK Chief Medical Officer's Physical Activities Guidelines, 2019). However, according to Nuffield Health, 76% of people do not reach the NHS recommendations of physical activity per week (Nuffield Health, 2023).

Compared to the 1960s, we are 20% less active and if current trends continue we will be 35% less active by 2030 (Public Health England [PHE], 2016). Around one in three (34%) of men and one in two (42%) of women are not active enough for good health and men are much more likely to report higher activity levels than women (Royal College of General Practitioners [RCGP], 2022). Physical inactivity is associated with one in six deaths in the UK and 3.2 million deaths annually worldwide, and is estimated to cost the UK £7.4 billion annually, including £0.9 billion to the NHS alone (Gov.UK, 2022).

There is consistent evidence that involvement in physical activity that preserves muscular strength and power in middle and older age is associated with a reduced risk of mortality from all causes (Hillsdon and Foster, 2018). The general advice is that the more conditions you have, the more you need to improve the core aspects of fitness, including strength, stamina and balance, for good health and to maintain independence (PHE, 2020).

In a UK survey of 8000 adults, women were more likely to cite barriers to exercise than men, citing lack of motivation (67%) and lack of time (55%) as the main causes (Nuffield Health, 2023). Another study of 6000 women found that nearly a third were unable to exercise more due to their menopausal symptoms, including joint pain and stiffness, low mood and tiredness (www.Balance-Menopause.com). However, evidence suggests that women who are more active, suffer less menopausal symptoms (Hillard et al, 2017).

Aerobic exercise or 'with oxygen' has the greatest health benefits and this involves increasing heart and respiration rates to supply more oxygen to the muscles. Aerobic exercise is often also called cardiovascular exercise, or 'cardio'. NHS England advocates that older adults should also undertake physical activities to improve muscle strength and balance on at least two days a week (PHE, 2020; NHS UK, 2021). This can include more anaerobic activities or 'without oxygen', which involve short bursts of activity where muscles are fuelled by the breakdown of energy stores (Patel et al, 2017). Activities may include short bursts of gardening, housework, or carrying shopping and walking upstairs.

Essentially, any activity that interrupts sitting or slouching for prolonged periods is good for health — there is no minimum amount as any equate to health benefits. Bouts of short activities which may accumulate over the day or week can be effective goals to set for those starting from zero or very inactive levels of activity, particularly for those who have long-term conditions, or who are rehabilitating or disabled (Caspersen et al, 1985; PHE, 2018).

TYPES OF ACTIVITIES

Not everyone likes gyms, personal training sessions or group exercise classes and we are far more likely to continue with any kind of new activity if we actually enjoy doing it. A good example is dancing (in any form), as this can help support health and longevity as it combines key activity elements including aerobic for cardiovascular protection and anaerobic strength and balance elements. Dancing also involves important social interaction and recall (learning the routines), which has been shown to lower the risk of developing dementia (Rodrigues-Krause et al, 2019).

Walking is another great all-over cardiovascular workout, particularly if you walk at a good pace. It also involves weight bearing as it impacts through the joints, which is good for bone health. The longer and further walked, the more muscle endurance and stamina improves, and with this an increase in energy levels (Hughes et al, 2018). Other activities that can help maintain or improve aerobic capacity, strength, balance and bone health are shown in *Table 1* (adapted from PHE, 2018).

CARDIOVASCULAR HEALTH

The biggest killer of women worldwide is coronary heart disease, killing more than twice as many women in the UK as breast cancer, and prematurely under the age of 75 years (British Heart Foundation [BHF] UK factsheet, 2024). Lack of oestrogen is associated with symptomatic, hormonal, menstrual,

and other physiological changes that increase cardiovascular disease risk (Samar et al, 2020).

Studies have consistently demonstrated a dose-response relationship between increased physical activity and decreased occurrence rate of cardiovascular disease (CVD), including reduced blood pressure, body weight, low-density lipoprotein (LDL) cholesterol and regulation of blood glucose levels (Ekelund et al, 2024). A systematic review estimated that lack of exercise leads to 6% of coronary heart disease occurrence worldwide (Tian and Meng, 2019).

One study demonstrated that women who engaged in moderate levels of exercise, e.g. two or three times a week, are as protected as those who did greater levels of physical activity and have far lower risks of vascular diseases than those who are inactive (Armstrong et al, 2015).

MUSCULAR SKELETAL AND BONE HEALTH

Physical activity has been shown to be as good or better than medication for many chronic conditions, such as type 2 diabetes, and muscular skeletal issues, e.g. lower back pain, and has a much lower risk of any harm. However, many often mistakenly believe that doing more exercise will make their conditions worse. It may seem counterintuitive to increase your activity level when you have chronic knee pain or arthritis, but exercising such as walking can actually provide a number of benefits, including lubricating the joints and increasing blood flow to the tissues (Arthritis Action). Studies have also shown that weight bearing exercise can slow osteoporosis and help bone formation (Zhang et al, 2022).

MENTAL HEALTH

Women can now spend around one-third of their lives in a post-menopausal state and are significantly more likely to suffer from depression and anxiety disorders due to loss of ovarian function and low oestrogen levels (Arevalo et al, 2015). People with depression are also usually less physically active and will spend more time indoors. However, engagement in physical activities can be a source of enjoyment and improve self-esteem and cognitive function. This, in turn, has a wider impact, such as bringing people from different backgrounds together and reducing social isolation by being involved in community activities and building stronger communities (PHE, 2020).

Table 1: Types of activities to maintain or improve muscle strength, bone health and balance (adpated from PHE, 2018)

Type of exercise	Improvement in muscle function	Improvement in bone health	Improvement in balance
Running	*	**	*
Resistance training	***	***	**
Aerobics, circuit training	***	***	**
Ball games	**	***	***
Racquet sports	**	***	***
Yoga, Tai Chi	*	*	*
Dance	*	**	*
Walking	*	*	†
Nordic walking	**	?	**
Cycling	*	*	*

*** strong effect ** medium effect * low effect † no effect ? not known

REDUCING RISKS OF DEMENTIA

Taking regular physical activity is one of the best ways to reduce the risk of getting dementia according to Alzheimer's UK. A large analysis found that regular exercise can reduce the risk of developing dementia by about 28% and for Alzheimer's disease the risk was reduced by 45% (Alzheimer's Society).

BREAST CANCER RISK

Being physically active reduces breast cancer risk by around 20%. The biggest reduction is seen in pre-menopausal women who do vigorous exercise. One large UK study found very active women had a 23% lower risk of pre-menopausal breast cancer and a 17% lower risk of post-menopausal breast cancer (Breastcanceruk.org). Physical activity also reduces the risk of breast cancer recurrence and mortality following a breast cancer diagnosis (Breastcanceruk.org). It is thought that physical activity helps lower levels of certain circulating hormones, and reduces inflammation, which can help lower the likelihood of cancer developing and progressing (Qiu et al, 2023).

Being active also generally improves the capacity of the immune system to protect you from cancer (Cancer Research UK). In addition, it keeps weight under control, which plays a significant role in lowering breast cancer risk if you are a woman who has reached menopause. One study found as little as an hour of walking per week helps improve survival rates if you have breast cancer, with maximum benefits found in women who walked for three to five hours per week (Breastcanceruk.org).

VASOMOTOR SYMPTOMS

A Swedish study reported that only 5% of women who exercised regularly experienced 'severe' hot flushes, compared to 14–16% in sedentary women (Ivarsson et al, 1998). In a study of 190 menopausal and perimenopausal women randomised to a 12-week physical activity programme, those who rated insomnia and joint discomfort severe or very severe declined by around 25%. Conversely, in the inactive group, hot flushes, sleep problems and joint problems got significantly worse (Javadivala et al, 2020).

VITAMIN D

Getting out in the fresh air also helps with daytime vitamin D levels, which is particularly important during the perimenopause and menopause. Women are at higher risk of reduced bone density and increased risk of fracture due to a decline in oestrogen levels (Mei et al, 2023). There has been increasing evidence of the benefits of vitamin D beyond bone health, including protection against CVD, genitourinary syndrome of menopause (GSM), cancer and emotional symptoms (Hassanein et al, 2023). For those who are deficient or wish to top up vitamin D, supplementation is safe and inexpensive and can play an important role in improving the overall state of menopausal women (Mei et al, 2023). The current recommended daily amount of vitamin D is 10mcg (400IU) a day (www.nhs.uk/conditions/vitamins-and-minerals/vitamin-d/).

Research has found that although brief advice alongside written information can produce modest short-term improvements, referral to exercise specialists can lead to positive longer term changes in activity levels (Hillsdon et al, 2005). Alongside the woman's preference, local knowledge of services and an awareness of the expertise of other allied social healthcare providers, such as social prescribers, can enable patients to be signposted and connected to appropriate local organisations, groups and activities.

A final word from the UK Chief Medical Officer (2019):

> *If physical activity were a drug, we would refer to it as a miracle cure, due to the great many illnesses it can prevent and help treat.*

Box 1 Top tips

- Start small — set smart goals — e.g. gentle walk for 5 or 10 minutes, then build gradually
- Try something new, such as yoga or Pilates, or learn to play a sport like 'tennis for beginners' or similar
- Swimming, or swimming lessons if you cannot swim — great if you suffer with joint pains as it is low impact and a good cardio workout
- Get together with a friend (or your better half) to exercise, particularly if you struggle for motivation as this can be sociable and fun
- Most important, find something enjoyable, as you are far more likely to stick to it.

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Useful resources

- NHS Choices has a range of information and support to help people get and keep fit — www.nhs.uk/live-well/exercise/
- Better Health has information and support to help people stay active — www.nhs.uk/better-health/
- Active 10 app helps individuals build 10 minutes of brisk walking into their routine — www.nhs.uk/better-health/get-active
- Couch to 5k helps people take up running — www.nhs.uk/live-well/exercise/get-running-with-couch-to-5k/
- Activity Alliance provides advice for disabled people to get active — www.activityalliance.org.uk
- Local pathways for Exercise on Referral gives one-to-one training for 12 weeks at local gyms at a discounted rate, and some people like the idea of a one-to-one personalised plan
- NHS Digital Weight Management Programme (check inclusion criteria and referral from a healthcare professional) — www.england.nhs.uk/digital-weight-management

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Gout: underdiagnosed and undertreated

Worldwide gout is the commonest type of inflammatory arthritis. It is often misdiagnosed and poorly managed (Dehlin et al, 2020). Gout can be diagnosed and treated in primary care and is amenable to nurse management (Doherty et al, 2018). This article will help readers to be able to diagnose and manage gout, as well as how to be aware of and treat acute gout and prevent further episodes. Certain conditions increase the risk of gout and this article advocates a holistic approach to improve overall health.

WORDS:

- Gout
- Identification
- Management
- Acute episodes
- Holistic approach

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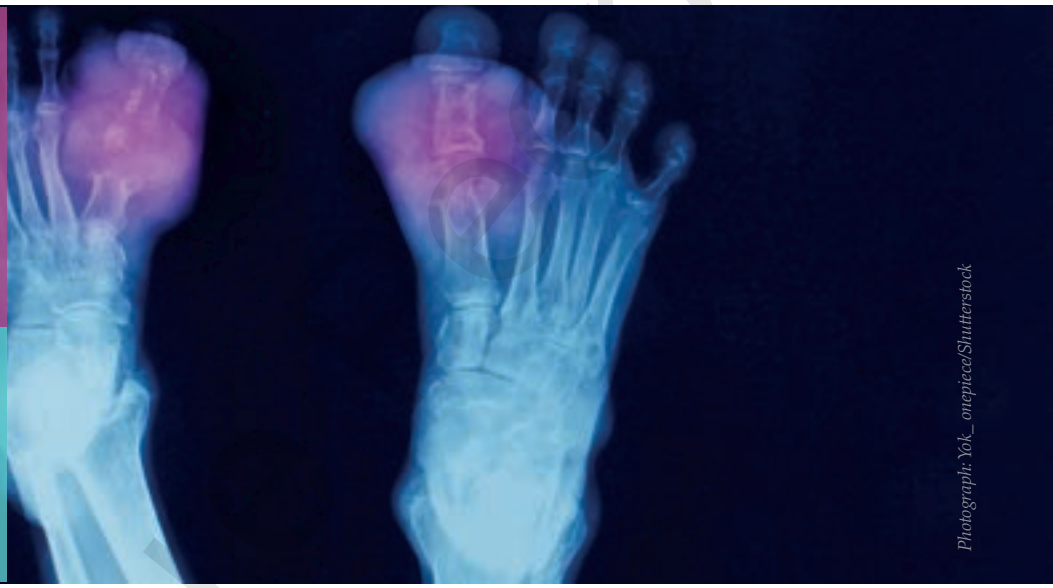

Photograph: YoK_ onepiece/Shutterstock

WHAT IS GOUT?

Gout is a type of inflammatory arthritis, defined as:

> *Gout is a type of arthritis caused by monosodium urate crystals forming inside and around joints, causing sudden flares of severe pain, heat, and swelling*
> (National Institute for Health and Care Excellence [NICE], 2023a).

Gout is triggered by a disorder of purine metabolism that leads to the build-up of uric acid in the blood. This condition is known as hyperuricaemia. It leads to the formation of crystals within and on the outer surfaces of joints. Gout can affect any joint; it most commonly affects the toes, knees, ankles and fingers (Ragab et al, 2017). There are four stages of gout, namely:

- Asymptomatic hyperuricaemia: as blood levels of uric acid rise the risk of developing gout increases
- Acute gout: almost all initial episodes affect a single joint. This is most often the big toe
- Intercritical gout: the second acute episode often occurs within a year of the resolution of the first episode. Chronic symptoms develop within 10 years
- Chronic tophaceous gout: large crystal deposits, tophi, produce irregular firm nodules and chronic joint damage.

(NICE, 2023a)

These stages are illustrated in *Figure 1*.

HOW COMMON IS GOUT?

Gout occurs throughout the world, however there are regional differences. In the UK gout is less common in Scotland and Northern Ireland. Gout is more common in men than in women and becomes more common as people age. In the UK the prevalence of gout has risen from 1.77% in 1997 to 2.49% in 2012 (Kuo et al, 2015).

WHO IS AT RISK AND WHAT ARE CONFOUNDING FACTORS?

As said, gout is more common in older people, especially older men. It is associated with metabolic syndrome, hypertension, dyslipidaemia, obesity and increased risk of cardiovascular disease, including cardiac failure and myocardial infarction (MI) (Stamp and Chapman, 2013; NICE, 2023b). Many patients with gout have stage three or greater severity chronic kidney disease (CKD) (Singh and Gaffo, 2020). Kidney stones, nephrolithiasis, can develop as a result of gout (Ramos and Goldfarb, 2022).

Some medicines, such as diuretics, aspirin and cyclosporine, an immunosuppressant, increase the

risk of a person developing gout (Ben Salem et al, 2017).

DIAGNOSIS AND TREATMENT OF THE ACUTE PHASE

Gout can be diagnosed, treated and managed in primary care without specialist rheumatological input (NICE, 2022). It is essential that clinicians working in primary care, such as general practice nurses (GPNs), have the ability to diagnose gout accurately and use urate lowering therapy (ULT) appropriately. Evidence suggests that there are delays in initiating it and that patients who would benefit from ULT do not always have this prescribed (Kuo et al, 2015).

Clinical features of gout are:

- Rapid onset
- Excruciating joint pain
- Exquisite tenderness to touch
- Erythema
- Articular/periarticular swelling

(Abhishek et al, 2017).

The person will often report: 'I went to bed and I was fine. I woke up with this'.

Precipitating factors include excess alcohol, especially beer which is high in purines, or high intake of purine-rich foods, such as offal, game, pheasant, rabbit, venison, oily fish — anchovies, herring, mackerel, sardines, sprats and whitebait — and seafood, especially mussels, crab, shrimps and other shellfish and fish. Meat and yeast extracts, such as Marmite and Bovril, are also high in purines (UK Gout Society, 2024).

Infection, injury and dehydration can trigger an attack of gout (Abhishek et al, 2017). Initiation of ULT can trigger an acute episode of gout. ULT can lead to a sudden drop in serum uric acid. This can lead to tiny tophi in the intra-articular spaces dissolving and releasing needle-like crystals. These can trigger an acute attack of gout. ULT should be titrated gently to avoid such risks (Feng et al, 2015).

In the early stages of the disease, the first metatarsophalangeal joint is most commonly affected (Stewart et al, 2016). Generally, only one joint is affected early in the course of the disease. The most commonly affected sites are knees, ankles and midfoot. As the disease progresses, the person is more likely to present with multiple joint involvement. *Figure 2* outlines the clinical features of gout.

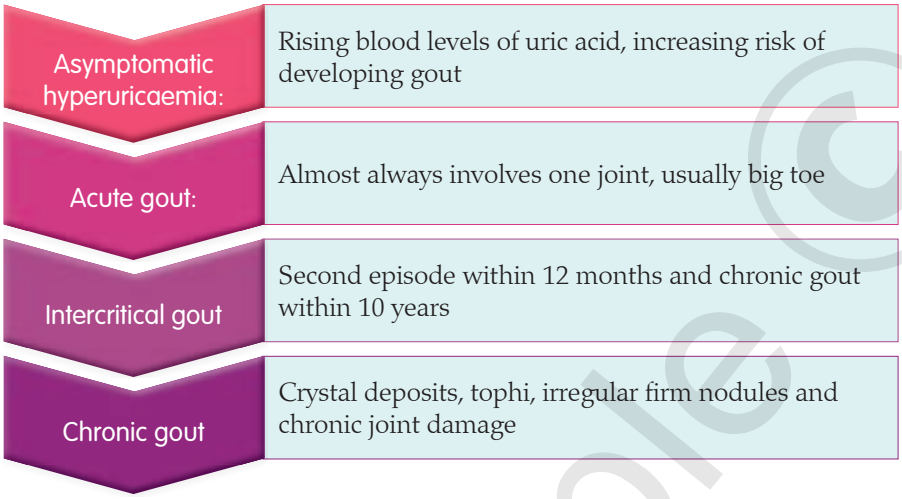

Figure 1.
How gout progresses from acute to chronic (author's own work based on NICE, 2023a).

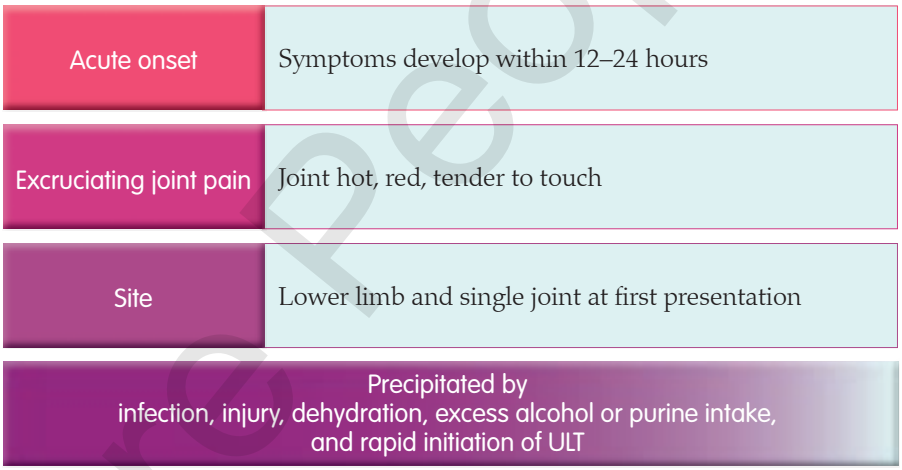

Figure 2.
Clinical features of gout (author's own work).

DIAGNOSIS

Gout is diagnosed on the basis of history and clinical assessment. The individual may have a low grade pyrexia and feel generally unwell. NICE (2022) recommends that blood is taken to measure serum urate level and confirm clinical diagnosis. A level of 360 micromol/litre indicates gout. If serum urate level is below 360 micromol/litre and gout is strongly suspected, the urate level should be checked at least two weeks later (NICE, 2022).

NICE recommends joint aspiration and microscopy of synovial fluid if a diagnosis of gout remains uncertain. Some primary care healthcare professionals are able to do this. If this is not possible, NICE recommends X-ray or computer tomography (CT) imaging of the affected joint (NICE, 2022). In day-to-day practice, diagnosis is usually made clinically and confirmed by checking serum urate levels.

However, clinicians should also consider alternative diagnoses, including septic arthritis, pseudogout, trauma, and inflammatory arthritis (*Figure 3*). Gout can also be confused with cellulitis, as the patient story here demonstrates (Rana et al, 2023).

Septic arthritis

Septic arthritis is an acute infection of a joint. It may be caused by bacteria or fungi. Septic arthritis can lead to the destruction of cartilage, severe disability, and increased mortality.

Red Flag

If septic arthritis is suspected, refer immediately according to the local care pathway.

Symptoms include fever, chills, hot red joint, severe pain in the affected joint especially on movement, and swelling within the joint (Tzanis et al, 2022).

Older people, especially those with conditions such as rheumatoid arthritis, artificial joints, active infections, people who inject drugs and people taking immunosuppressants are at particular risk of septic arthritis (Earlwood et al, 2021).

Pseudogout

Pseudogout is also known as calcium pyrophosphate deposition disease (CPPD). It is an acute arthritis caused by the deposition of CPPD crystals in the joints, which leads to acute arthritis. Pseudogout is more common in larger joints, such as the knees or wrists. It can be difficult to differentiate between gout and pseudogout (Zamora et al, 2023)

Pseudogout develops over days and weeks. Ninety-five percent of people with pseudogout are male (Kleiber Balderrama et al, 2017). The disease is rare in people under the age of 60 (Neame et al, 2003). Many people affected, around 30–50%, are over the age of 85 on first presentation (Higgins, 2016).

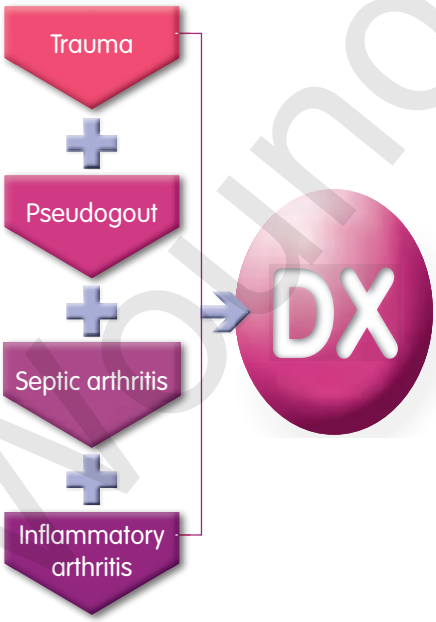

Figure 3.
Alternative diagnoses (author's own work).

Trauma

Careful history-taking is essential as trauma can cause a red painful joint and joint injury can trigger gout (NICE, 2023c).

Inflammatory arthritis

When a person presents with swelling and pain in multiple joints, clinicians should consider inflammatory arthritis (NICE, 2023c).

Rheumatoid arthritis and psoriatic arthritis can both present with inflammation and pain in a single joint or digit (NICE, 2017; 2020).

Normally inflammatory arthritis develops slowly over time. If inflammatory arthritis is suspected, refer urgently for a rheumatological opinion.

TREATING ACUTE GOUT

It is important to start treatment as soon as possible to reduce damage to joints (BNF, 2024a). There are three possible treatments for acute gout:

- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Colchicine, a treatment specifically used to treat gout
- Corticosteroids, these can be given orally, intramuscularly, or injected directly into the joint (NICE, 2023a; BNF, 2024a).

People under the age of 65 who are not prescribed anticoagulants are usually prescribed a NSAID. These can cause ulcers and intestinal bleeding so are not normally prescribed to people at risk of gastrointestinal bleeding, such as older people, and those with a history of stomach ulcers or gastric surgery. Naproxen is usually the NSAID of choice as it has fewer gastrointestinal side-effects than other NSAIDs. The usual dose is 750mg initially, then 250mg three times daily (TDS) until the attack has passed (BNF, 2024b). NICE (2023a) advises clinicians to consider prescribing a proton pump inhibitor for patients on NSAIDs.

Colchicine is licensed for the treatment of acute gout. It has a narrow therapeutic range and in overdose can cause serious side-effects and even lead to death (Stamp et al, 2023). People who are at greatest risk are those with renal or hepatic impairment, gastrointestinal or cardiac disease, and people over the age of 85 (Stamp et al, 2023). It can be given to people who are being treated with anticoagulants. The dosage is 500 micrograms two to four times a day until symptoms are relieved. The total dose in a course of treatment should not exceed 6mg. There should be a break in treatment of at least four days before starting another course. Side-effects include abdominal pain, diarrhoea, nausea and vomiting (BNF, 2024c).

Corticosteroids can be given if NSAIDs and colchicine are not suitable. NICE (2023a) recommends prednisolone 30–35mg once a day for three to five days. Alternatively, an intramuscular corticosteroid injection or an intra-articular corticosteroid injection may be given. All corticosteroids are being given 'off label'. In primary care,these are not normally prescribed by nurses but may be given by medical staff. Normally medical staff would discuss treatment, other than oral steroid therapy, with a rheumatologist prior to treatment. NICE (2023a) advises clinicians to consider prescribing a proton pump inhibitor for patients prescribed oral steroids.

The person should be advised to elevate the affected joint, to rest and apply ice packs. These simple measures can greatly improve comfort.

HOLISTIC CARE

The person presenting with gout is likely to be overweight, hypertensive, have impaired renal function and may have metabolic syndrome and type two diabetes (Stamp and Chapman, 2013; Singh and Gaffo, 2020; NICE, 2023b). While some of the risk factors for gout, such as age and gender, cannot be modified, many can be changed. *Figure 4* illustrates modifiable and non-modifiable risk factors.

NICE (2022) guidance recommends that clinicians arrange

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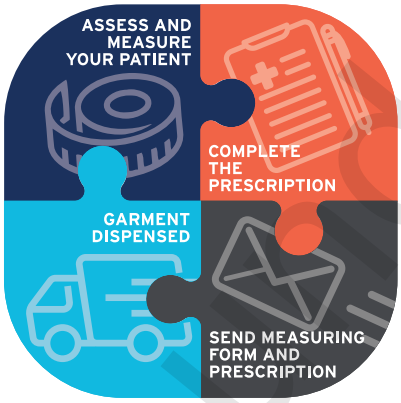

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a follow-up appointment when the flare has settled. They should measure the serum urate level and assess lifestyle factors and comorbidities, including cardiovascular risk factors and CKD. It is helpful to arrange blood tests before the review to check:

- Haemoglobin A1C (HbA1c) to screen for diabetes
- Lipid levels to assess for cardiovascular disease
- Urea and electrolytes to check for renal disease

(NICE, 2022).

Weight, body mass index (BMI) and blood pressure can be checked at the appointment. Clinicians can provide lifestyle advice or treatment for any identified problem. If, for example, the review indicates that the person is at risk of developing type two diabetes, they can then be referred to the local diabetes prevention programme (see *Resources*). The person can also be given advice on lifestyle measures to reduce the risks of further gout flares.

NICE (2022) recommends that medication is reviewed and, whenever possible, medicines that increase the risk of a person developing gout are discontinued.

The individual should be provided with information about gout and advised to have a healthy diet. There is insufficient evidence to recommend a special diet. The person should be advised to avoid consuming alcohol excessively and that maintaining or regaining a healthy body weight will reduce the risk of flares. They should be made aware of the UK Gout society (see *Resources*).

Resources

NHS Diabetes Prevention Programme Know Your Risk tool: https://preventing-diabetes.co.uk/know-your-risk-tool/

Link to register for the NHS Diabetes Prevention Programme: https://preventing-diabetes.co.uk/referral/

UK Gout Society: www.ukgoutsociety.org/all_about_gout.htm

Patient story

Charles Cartwright is a 55-year-old gentleman. He complains of bilateral sore, swollen knees and is using elbow crutches. He has come to request antibiotics to treat the cellulitis he thinks he is suffering from. He reports that he has been treated several times for cellulitis in recent years, but the treatment does not seem to last long. Gout can be misdiagnosed as cellulitis (Rana et al, 2023).

On examination, both knees are acutely tender, red and hot. Mr Cartwright reports that he attended accident and emergency two days ago but staff declined to prescribe antibiotics. There are no risk factors for septic arthritis.

Blood tests revealed an elevated serum urate level. This, combined with clinical features, confirmed a diagnosis of gout (NICE, 2022). Mr Cartwright was prescribed a non-steroidal anti-inflammatory medication. He was not at high risk of gastric ulcers or bleeds so a proton pump inhibitor was not required. He was also prescribed paracetamol one gram QDS as he had severe pain. He was advised to apply ice to his joints, elevate them and rest.

He was also advised to seek urgent medical attention if he felt generally unwell, had a high temperature, or felt hot and shivery.

Mr Cartwright was reviewed 48 hours later. He was walking without crutches and reported a significant improvement in pain and swelling. He will require treatment to ensure gout is managed in future.

PREVENTING RECURRENCE

People with gout who have multiple or troublesome flares, CKD stages 3 to 5, tophi, chronic gouty arthritis and diuretic therapy should be offered ULT. ULT is normally given for the rest of a person's life. It is started two to four weeks after a gout flare has settled. First-line therapies are allopurinol or febuxostat (BNF, 2024d; 2024e). Allopurinol should be offered first-line to people with gout who have major cardiovascular disease such as myocardial infarction, stroke, or unstable angina. Febuxostat should be used with caution in patients with pre-existing major cardiovascular disease, especially those with high urate crystal and tophi burden or those initiating ULT. Liver function should be checked before starting febuxostat (BNF, 2024e).

Dosages of allopurinol and febuxostat vary according to the severity of gout. Treatment doses are determined by 'treating to target'. The aim is to start on a low dose and titrate up slowly until the serum urate level is below 360micromol/L (6mg/dL). Serum urate levels are checked monthly. In certain cases, lower levels, 300micromol/l, are indicated. This is for people who have tophi or chronic gouty arthritis, or who continue to have ongoing frequent flares despite having a serum urate level below 360micromol/L (6mg/dL). Serum urate levels should be checked annually in people with gout who continue ULT after reaching their target serum urate level (NICE, 2022).

Rational for treat to target

The saturation point of uric acid is approximately 404micromol/l. At this level, urate crystals are deposited in and on the joints. When blood levels fall, there is room in the blood for more uric acid, so the crystals disolve. The urate will be excreted via the kidneys (Ruoff and Edwards, 2016).

CONCLUSION

People with gout are not always well managed (Dehlin et al, 2020).

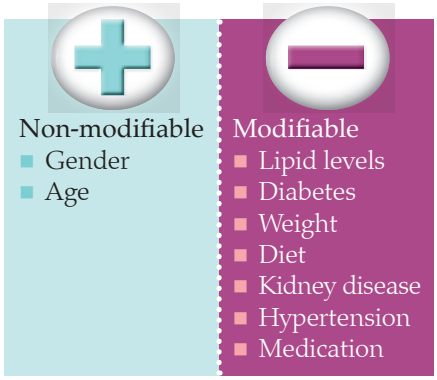

Figure 4.
Modifiable and non-modifiable risk factors in gout (author's own work).

When a person first presents with gout, they require a great deal of care and support. Nurses are in a unique position to improve the care of people with gout. Indeed, Doherty et al (2018) studied 517 patients with gout, where 255 were assigned nurse-led care and 262 usual care. The researchers found that nurse-led care was associated with high uptake of and adherence to ULT and concluded that nurse-led care was effective and superior to usual care. **GPN**

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Vaccines for adolescents and young people: how general practice can contribute to high coverage

The United Kingdom (UK) has a comprehensive national immunisation programme which comprises both routine and selective immunisation schedules (UK Health Security Agency [UKHSA], 2023). The routine programme includes those vaccines offered to the population, with eligibility predicated on age. For the last few years, vaccine coverage has been falling in the majority of children's and young people's immunisation programmes (UKHSA, 2022; UKHSA 2023a; UKHSA 2023b; UKHSA 2023c). The decline in coverage has been made worse by the Covid-19 pandemic and consequent lockdowns, illness among recipients, and confusion and hesitancy about vaccines in general. This article discusses the drop in coverage of the adolescent immunisation programmes in England, and the role that general practice nurses (GPNs) and primary care immunisers can play in ensuring that young people are offered missing vaccines. The benefit of this catch-up activity is seen in reduced risk of morbidity and mortality from vaccine preventable illness in both individuals and those around them.

KEY WORDS:

- Vaccines
- Immunisation
- Coverage
- Adolescents and young people

Photograph: Christos Georghiou/Shutterstock

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The three vaccines that are routinely offered to adolescents in England as part of a long-standing school-aged immunisation programme are:

- Human papillomavirus (HPV) vaccine
- Meningococcal ACWY (MenACWY) vaccine
- Combined tetanus, diphtheria and polio (Td/IPV) vaccine.

Although adolescents may also be offered seasonal influenza vaccines and mumps, measles and rubella (MMR) catch-up vaccines, these programmes will not be covered in this article. Information on these immunisation programmes can be accessed in the relevant chapters of the 'Green Book' (UKHSA, 2023d) and articles published previously in this journal (MacDonald, 2021; Harford, 2023).

NHS England is currently responsible for commissioning English public health services, including immunisation programmes. These services are detailed in the NHS Public Health Functions Agreement which is published annually. Annex A of the agreement details the immunisation programmes to be provided (NHS England, 2023). NHS England issue contracts and service specifications annually to providers delivering the routine and selective immunisation programmes.

For many decades, vaccines recommended for young people of school age have mainly been commissioned and offered by teams of immunisers primarily vaccinating eligible adolescents via school-based vaccination sessions. In England, the commissioning arrangements and composition and affiliations of immunisation teams have changed over the years, as both immunisation programmes and NHS structures have altered. Immunisation services for adolescents in England are now delivered by teams of immunisers known as school-aged immunisation services (SAIS).

For the purposes of this article, the relevant commissioning documents are the service specification for school-aged immunisation services (NHS England, 2023a) and the general medical services statement of financial entitlement for primary medical services contractors (Department of Health and Social Care [DHSC], 2023).

SAIS — SERVICE SPECIFICATION

The SAIS service specification details the service requirements for these teams of immunisers (NHS England, 2023a). The SAIS are required to

provide immunisation services to any eligible child or young person who:

- Attends a school in the commissioned area
- Is not attending school
- Is registered with a GP, or is unregistered with a GP but resident in the commissioned area.

For practical purposes, this includes any child of school age, home-schooled children, children not in mainstream schools, in special schools, in private schools, and not at school for whatever reason. As well as delivering vaccination clinics in schools, the SAIS are required to have additional arrangements to vaccinate children and young people in community clinic settings. This is important to ensure access is available to children and young people not in mainstream education, those not attending school and those who may require a more private setting for vaccination, such as those who are needle phobic or unduly anxious about vaccination (School and Public Health Nurses Association [SAPHNA], 2022).

The NHS England specification for SAIS covers the following immunisation programmes (NHS England, 2023a):

- Human papillomavirus (HPV) vaccinations
- Diphtheria, tetanus and poliomyelitis (Td/IPV) booster
- Meningococcal ACWY (MenACWY) conjugate vaccine
- Measles, mumps and rubella (MMR) catch-up vaccinations
- School-aged children's seasonal influenza vaccinations.

Not all SAIS teams deliver all the programmes above. Occasionally, more than one SAIS provider might be commissioned by a local NHS England team, in a specific geographic area. This may mean one SAIS offering seasonal influenza vaccines to both primary and secondary age children, and another offering routine adolescent age vaccines. SAIS are required to deliver a catch-up service for children and young people who are missing any of these contracted immunisations (NHS England, 2023a).

VACCINE COVERAGE

Since the Covid-19 pandemic, there has been a fall in the number of young people getting their routine immunisations. School closures during lockdowns and young people missing school due to Covid-19 illness resulted in poor uptake of vaccines administered in the academic years 2019/20 and 2020/2021. However, even in the year 2021/22, coverage of the adolescent vaccines did not recover, nor did it reach pre-pandemic levels (UKHSA, 2022; UKHSA, 2023b; UKHSA, 2023c).

"School closures during lockdowns and young people missing school due to Covid-19 illness resulted in poor uptake of vaccines administered in the academic years 2019/20 and 2020/2021.

The reasons for this fall in coverage are not fully understood, but are likely to be multifactorial.

To reduce the impact of the Covid-19 pandemic on vulnerable individuals, the NHS and on children's education, school-aged children have been offered seasonal flu and Covid-19 vaccines, as well as catch-ups of missing MMR vaccine doses and routinely offered adolescent vaccines. These multiple vaccine offers have added to the workload for the SAIS. For recipients, parents and carers, these multiple vaccine offers may have resulted in a phenomenon termed 'vaccine fatigue', or may have caused confusion due to different vaccine offers in close succession.

Whatever the reasons for the drop in coverage, it is apparent that many tens of thousands of young people have missed receiving their vaccines over the last three years; and indeed, before that, since coverage has never been 100%.

Ensuring high coverage among eligible young people is important for two reasons. Vaccines do not just reduce the risks of poor outcomes from vaccine preventable diseases in an individual, but are also important in providing indirect protection to the wider community. These indirect benefits will be highlighted for each vaccine later in this article. Direct benefits of each of the vaccines given to adolescents are covered in relevant chapters of the 'Green Book' (UKHSA, 2023d).

The UK has extensive surveillance of national immunisation programmes. For adolescent immunisation programmes, reports for the academic year are published annually.

The annual report for Td/IPV vaccine coverage for the adolescent vaccination programme for the academic year 2021–2022 (UKHSA, 2023c) contains more detail. *Figure 1*, lifted from the report, provides a clear visual representation of the drop in coverage for the last three years.

Similar drops in coverage have been seen for the adolescent MenACWY (*Figure 2*) and the HPV immunisation programmes (UKHSA, 2023b).

Human papillomavirus (HPV) vaccination coverage estimates in adolescents in England for the academic year 2021–2022 (UKHSA, 2022) also reveal the decline in uptake of HPV vaccine over the last few years (*Table 1*).

Remember

Some of the delivery and commissioning arrangements for adolescent immunisation will vary in Northern Ireland, Scotland and Wales and staff working in those countries should check details via the local public health services (Public Health Agency Northern Ireland, 2023; Public Health Scotland, 2023; Public Health Wales, 2023).

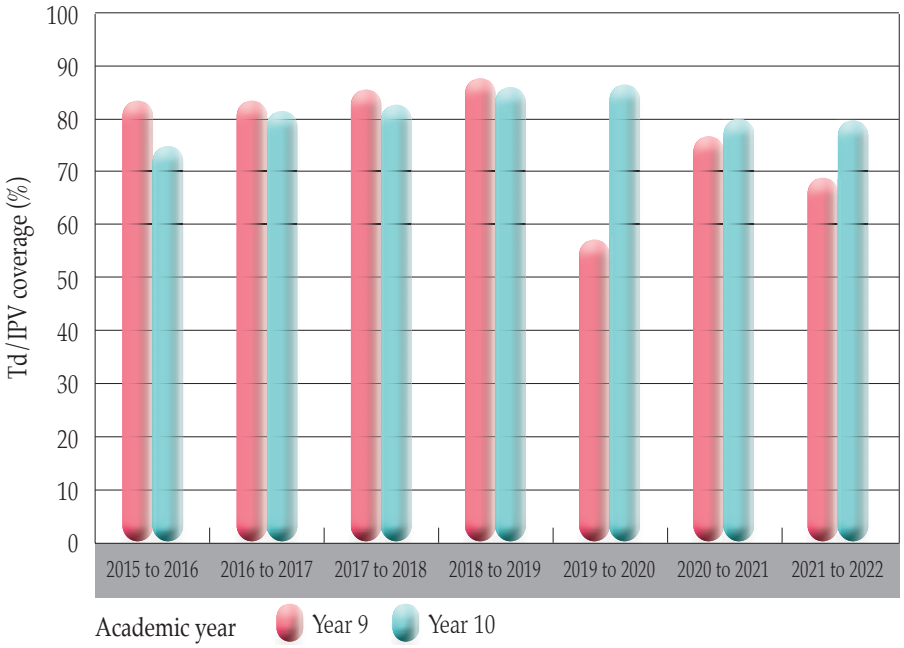

Figure 1.
Td/IPV coverage in adolescents in school years 9 and 10 by academic year from 2015 to 2022 (UKHSA, 2023c).

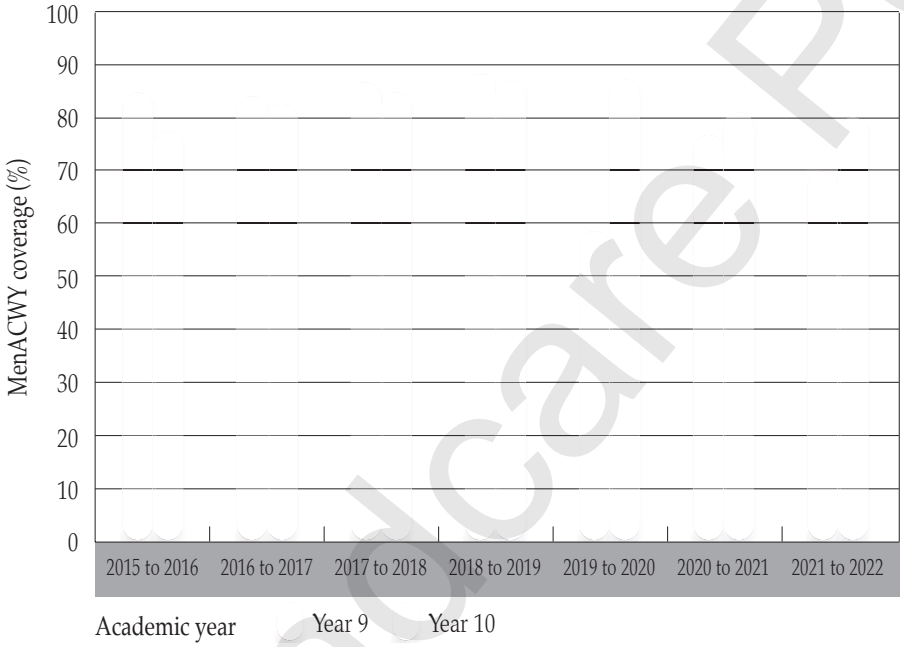

Figure 2.
MenACWY coverage in adolescents in school years 9 and 10 by academic year from 2015 to 2022 (UKHSA, 2023b).

IMPORTANCE OF THESE PROGRAMMES

The drop in coverage of adolescent vaccines is very concerning and risks an increase in morbidity and mortality associated with vaccine preventable diseases in individuals, groups or communities of unvaccinated or under-vaccinated individuals.

The value of high vaccine coverage and risks of low vaccine coverage have been highlighted in increases in diphtheria cases in 2022 (UKHSA, 2023e), isolates of vaccine-derived polio virus in sewage samples in London in 2022 (UKHSA, 2022a; Joint Committee for vaccination and immunisation [JCVI], 2022), UKHSA news statement on HPV programme coverage (UKHSA, 2023f), and the JCVI statements on changes to the childhood immunisation programmes (JCVI, 2022a; JCVI, 2023).

TETANUS, DIPHTHERIA AND POLIO VACCINATION

The routine national immunisation programme requires that by adulthood individuals should ideally have had five doses of tetanus, diphtheria and polio-containing vaccines (UKHSA, 2023). The adolescent dose of tetanus, low dose diphtheria and polio, given as Revaxis®, is the fifth of these vaccines, and is offered to young people aged 13–14 years (school year 9 in England). If individuals have not had their requisite number of vaccines by the recommended age, there is guidance from UKHSA for providers of immunisation services to offer missing vaccines to such persons, namely *Vaccination of individuals with uncertain or incomplete immunisation status* (UKHSA, 2023g). If young people miss their adolescent dose of Td/IPV, this could leave them unvaccinated or under-vaccinated and vulnerable to these diseases as they enter adulthood.

MENACWY VACCINATION

Before 1 September 2015, a dose of monovalent meningococcal capsular group C (MenC) vaccine was offered to adolescents as part of the routine school-aged immunisation service. (PHE, 2020). However, due to a rise in cases of meningococcal capsular group W (Campbell et al, 2015), this monovalent vaccine was replaced by the quadrivalent meningococcal vaccine containing antigens of the capsular groups A, C, W and Y (MenACWY).

Surveillance in England over the last two decades has revealed a marked decline in invasive meningococcal disease (IMD), and this decline continues (UKHSA, 2023h). The initial decline was primarily due to the introduction of the vaccine against MenC in 1999. The introduction of the meningococcal B (MenB) vaccine for infants and the MenACWY vaccine for adolescents in 2015 have contributed to continuing declines over the last ten years (UKHSA, 2023h). Other factors have also contributed to the decline,

including secular changes to MenB disease over time and reduced meningococcal carriage prevalence in young people as a result of lockdowns and social distancing measures (UKHSA, 2023h; JCVI, 2022a).

JCVI has been required to consider future changes to the immunisation schedule for children aged over 12 months because of discontinuation of the Menitorix® (Hib/MenC) vaccine (JCVI, 2022a). During its deliberations, JCVI requested some modelling data to decide whether a MenC dose was still required in the childhood schedule.

It was noted that a dose of MenC containing vaccine was not required in the future children's routine immunisation programme, since MenC disease was now rare and infants were benefiting from the indirect protection from the adolescent MenACWY immunisation programme (JCVI, 2023). The importance of MenACWY adolescent programme and its indirect benefit to the whole population was borne out in JCVI considerations and subsequent statements:

> *Decline of invasive meningococcal A, C, W and Y disease in the UK (primarily due to the success of the teenage MenACWY vaccination programme). Efforts to sustain and improve coverage of MenACWY in adolescents are important to maintain herd immunity.*
>
> JCVI interim statement on immunisation schedule for children August 2023 (JCVI, 2022a)

> *Modelling work reviewed by the JCVI in June 2022 found that indirect protection against MenC in infants is sustained as a result of the teenage MenACWY programme. Over time the teenage vaccine programme is expected to reduce carriage prevalence of groups C, W and Y to near elimination levels (group A carriage has already been almost undetectable for many years in the UK). The predicted decline in transmission has been accelerated by the effects of the pandemic and the resulting reduction in social contact.*
>
> *Maintaining good vaccine uptake is vital to all immunisation programmes and efforts should be continued to promote catch up vaccination in all those who may have missed out on vaccinations during the pandemic.*
>
> JCVI statement 30th November, 2023 (JCVI, 2023)

Table 1: HPV vaccination coverage (UKHSA, 2022)

Year 8 females	One dose
2021–22	69.6%
2020–21	76.7%
2019–20	59.2%
2018–19	88.0%
Year 8 males	**One dose**
2021–22	62.4%
2020–21	71.0%
2019–20	54.4%

NB: programme for males introduced in 2019

HPV VACCINATION

The HPV vaccination programme was introduced in 2008 with the initial aim of reducing the burden of HPV-associated cervical cancer in women (UKHSA, 2023i). Consequently, until 2019, the programme only offered HPV vaccine to females between the ages of 12 and 25 years.

As well as causing cervical cancer and genital warts, HPV can cause other related cancers, such as genital cancers and cancers of the head and neck (UKHSA, 2023i). In 2015, JCVI advised that a subsection of males — men who have sex with men (MSM) — should also be offered HPV vaccination up to the age of 45 with no lower age limited (JCVI, 2015). This national programme was introduced due to increased risk of HPV disease and poor outcomes in this group. This programme is offered via specialist sexual health services (SHSs) and/or human immunodeficiency virus (HIV) clinics in England (UKHSA, 2023j).

In 2018, following a review of the evidence of HPV-related disease, the JCVI advised that the HPV adolescent immunisation programme should be offered universally to boys as well as girls (JCVI, 2018). In September 2019, the universal adolescent HPV immunisation programme was introduced and the vaccine was offered to boys born on or after 1 September 2006 (PHE, 2019). Due to evidence of prior indirect protection provided to older boys by the girl's HPV immunisation programme, a catch-up programme for older boys was not advised (JCVI, 2018).

Despite not being offered HPV vaccination, there has been a reduction in HPV infection in males of the same age as females who were vaccinated — as illustrated by a reduction in genital warts in both girls and boys (UKHSA, 2023k).

> *In 2022, the rate of first episode genital warts diagnoses among young women aged 15 to 17 years attending SHSs was 67.9% lower than the rate in this age band in 2018. 2018 is the first year that all young women aged 15 to 17 years attending SHSs would have been offered the quadrivalent vaccine when aged 12 to 13 years in the National HPV Vaccination Programme. A decline of 71.5% was seen in heterosexual young men of the same age over the same period, suggesting a combination of substantial herd and direct protection within this age group overall.*
>
> (UKHSA, 2023k)

Eligible boys, like eligible girls, will remain eligible to receive the HPV vaccine until the age of 25 years. The impact of the HPV immunisation programme on HPV infection and disease in females has been well evidenced and has already saved hundreds of lives (UKHSA, 2023i). In terms of the

initial aim of the programme, a landmark study published in the *Lancet* in 2021 revealed that 'the HPV immunisation programme in England has almost eliminated cervical cancer in women born since 1 September 1995' (Falcaro et al, 2021). The universal adolescent programme is expected to save thousands of lives over coming years.

IMMUNISATION OF ADOLESCENTS AND YOUNG ADULTS IN GENERAL PRACTICE

Provision of vaccines to children via school-based immunisation services was introduced because a school setting provides an ideal venue to attain high coverage. It is also convenient for service providers, children, young people and their parents/carers to receive vaccines at school, negating the need for appointments at other providers, which may mean time off school or work for parents/carers.

Individuals with uncertain or incomplete immunisation history who have left school, or cannot be vaccinated by a SAIS may need to be offered missing vaccines by other providers. This is where general practice-based immunisers and general practice nurses (GPNs) can help to ensure that young people are offered any missing vaccines. It is not routine business to vaccinate adolescents in general practice, however it is a service that can be offered on an opportunistic or request basis (DHSC, 2023).

Immunisation leads in general practice should ensure that there are plans in place to identify and offer vaccines to under-vaccinated patients. Children and young people who are missing vaccines, but who could still be vaccinated by a SAIS, should be signposted to their SAIS and told to enquire how they can access their missing vaccines. General practice staff can find out who their local SAIS provider is by contacting the local NHS England regional team (www.england.nhs.uk/about/regional-area-teams/). It is advisable to give SAIS contact details to the individual, rather than offer to contact SAIS on their behalf, since that can add delay and confusion to the request.

If the SAIS cannot satisfactorily comply with a request to provide missing vaccines, general practice immunisers could step in. The General Medical services statement of financial entitlements stipulates under which circumstances and for which vaccines primary care will be remunerated with an item of service fee (currently £10.06 per dose) (DHSC, 2023).

"It is not routine business to vaccinate adolescents in general practice, however it is a service that can be offered on an opportunistic or request basis.

Since HPV and MenACWY vaccine programmes are not routinely offered in general practice settings, immunisers and GPNs should familiarise themselves with guidance on both programmes, which is provided in the comprehensive 'information for healthcare professionals/practitioners' documents (PHE, 2020; UKHSA, 2023l) and in the relevant chapters of the 'Green book' (UKHSA, 2023d).

In general practice, the Td/IPV vaccine can be offered from age 14 upwards (with no upper age limit), and the MenACWY and HPV vaccine from age 14 to 25 years. MenACWY and HPV vaccine can be offered opportunistically or if requested as catch-up, where the individual was not administered or missed vaccination under the schools' programme (DHSC, 2023).

Both males and females are eligible for MenACWY up to the age of 25. The HPV vaccine eligibility, up to age 25, includes females born after 1 September 1991. However, only males born on or after 1 September 2006 are eligible. Males born before 1 September 2006 are not eligible for HPV vaccine; although if they identify as gay, bisexual or a man who has sex with men (GBMSM), they may be eligible for vaccination under the vaccination programme for MSM (UKHSA, 2023j). If GPNs or immunisers know of men registered in their practice who identify as GBMSM and who may benefit from, or are requesting HPV vaccine, they should signpost them to local specialist sexual health services and/or HIV clinics (UKHSA, 2023j). There are leaflets explaining this programme, which can be downloaded and given to patients (UKHSA, 2023m).

There are UKHSA produced immunisation resources available for teenagers and young people. Leaflets, posters and other resources, including in other languages and easy read versions, are available for download from the HPV and MenACWY programme pages, and resources for teenagers and young people pages on the gov.uk website (www.gov.uk/government/collections/hpv-vaccination-programme; www.gov.uk/government/publications/menacwy-vaccine-information-for-young-people; www.gov.uk/government/publications/a-guide-to-the-3-in-1-teenage-booster-tdipv). As well as being downloaded, hard copies of many resources can be ordered free from the NHS Health Publications website (www.healthpublications.gov.uk/Home.html).

The falling coverage of adolescent vaccines makes it even more important that when adolescents and young people are seen in general practice their immunisation history is checked. Adolescent vaccines discussed here are all inactivated and can be co-administered if more than one is needed. Such co-administration would ensure that protection is offered to these young people in the minimum number of visits and in the shortest time possible; also reducing the risk that they may

be lost to follow-up. If the young person requires vaccines other than those mentioned here, most can be administered at the same time. However, trained competent immunisers will be aware that there are recommendations on time intervals when administering more than one live vaccine ('Green Book' chapter 11; www.gov.uk/government/publications/immunisation-schedule-the-green-book-chapter-11).

It may be the case that adolescents and young people request immunisation in the absence of parents or guardians. To ensure such requests can be granted, GPNs and immunisers should remember the issues pertaining to consent. All adults (over 18 years of age) can, of course, consent for themselves, as can young people aged 16 and 17 years old. Young people under 16 requesting vaccination can be assessed as being Gillick competent, and if considered competent can consent for themselves. More information on consent for immunisation and further references on Gillick competency are available in the 'Green Book' chapter 2 (www.gov.uk/government/publications/consent-the-green-book-chapter-2).

CONCLUSION

Many adolescents and young people have missed important vaccines over the last three years, and for many years before that too. Recent declines in coverage of adolescent vaccines have been primarily attributed to the negative impact of the Covid-19 pandemic on school-aged immunisation service delivery arrangements, and potential confusion about the benefits and types of vaccines being offered. GPNs and immunisers play an important role in offering missing vaccines to their registered patients. NHS England contractual arrangements allow general practice providers to offer missing vaccines, including Td/IPV, HPV and MenACWY to eligible individuals, and for practices to be remunerated for this activity.

Adolescent immunisation programmes, and all immunisation programmes, not only provide protection to individual recipients in the form of reduced morbidity and mortality, but also offer indirect benefits in the form of reduced incidence and prevalence of vaccine preventable diseases in the UK population. GPN

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Key points

- The UK has a comprehensive national immunisation programme which comprises both routine and selective immunisation schedules.
- For the last few years, vaccine coverage has been falling in the majority of children's and young people's immunisation programmes.
- Ensuring high coverage among eligible young people is important.
- Vaccines do not just reduce the risks of poor outcomes from vaccine preventable diseases in an individual, but are also important in providing indirect protection to the wider community.
- GPNs and immunisers play an important role in offering missing vaccines to their registered patients.

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Peak flow monitoring: what GPNs should know

Peak expiratory flow rate (PEFR) is the volume of air forcefully exhaled at maximum speed. This can be measured using a peak flow meter or a spirometry device. Peak flow meters are portable, inexpensive and widely available. The technique is non-invasive, carries no risk to the person, can be taught and learned quickly, and can easily be mastered by the patient. Published evidence for the use of peak expiratory flow rate (PEFR) and peak flow monitoring in asthma is limited, despite the use of the peak flow meter being documented in national and international guidelines for many years. National and international guidelines recommend the use of easily calibrated spirometers, which can provide accurate results with good technique, along with fractional exhaled nitrous oxide (FeNO) testing, which requires a greater analysis and interpretation of the results. Is the use therefore of the peak flow meter redundant? This article discusses the indications for use of peak flow meters, technique and clinical context.

KEY WORDS:

- Asthma
- COPD
- Peak flow monitoring
- Technique
- Interpretation

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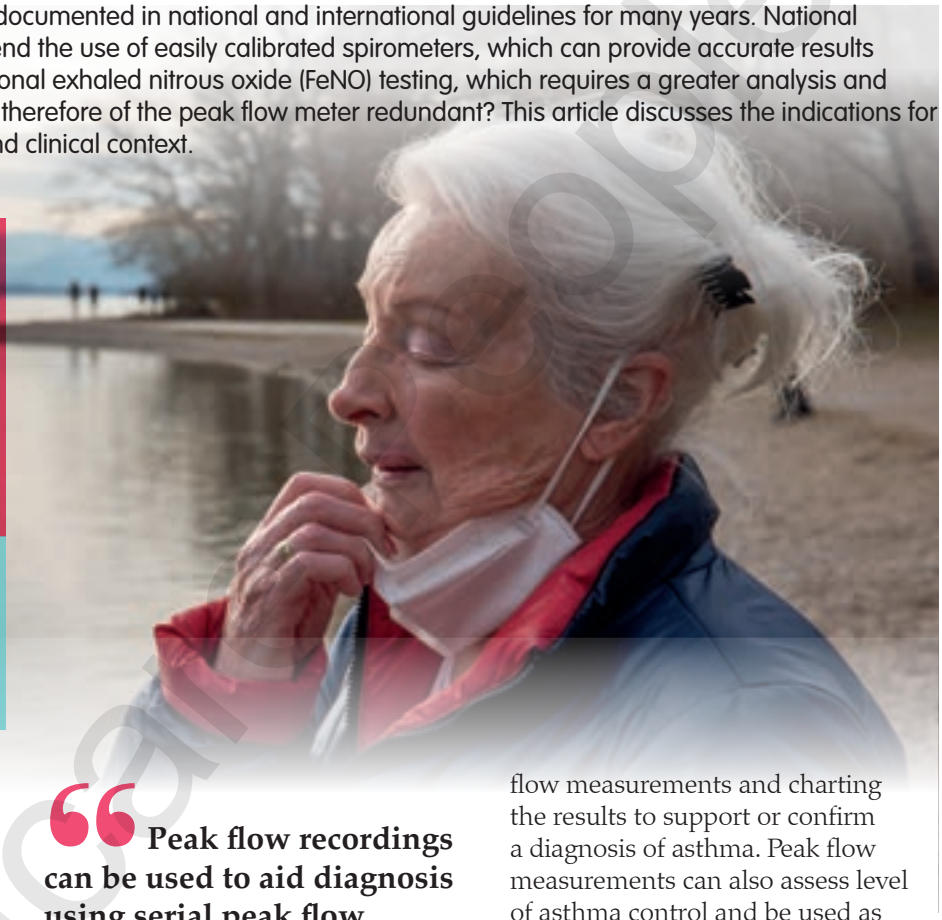

Asthma and chronic obstructive pulmonary disease (COPD) are common respiratory disorders defined by airflow obstruction. Asthma is characterised by airflow variability, whereas the obstruction in COPD is largely permanent (National Institute for Health and Care Excellence [NICE], 2017; 2019). A careful, detailed history and examination of the patient should be undertaken, followed by specific testing as clinically indicated (NICE, 2021).

Asthma symptoms are often worse at night and in the early morning. It is worth remembering that asthma, although more commonly develops in childhood, can develop at any age (British Thoracic Society/Scottish Intercollegiate Guidelines Network [BTS/SIGN], 2019). If it develops with no known childhood component, it is known as late onset asthma. There is no single test to confirm a diagnosis of asthma (NICE, 2021; Global Initiative for Asthma [GINA], 2022). Peak flow measurements in asthma are well established in clinical practice. However, they appear to be underutilised, as the national review into asthma deaths (NRAD) identified very few people had a documented peak flow recording in their medical records (Royal College of Physicians [RCP], 2014).

“Peak flow recordings can be used to aid diagnosis using serial peak flow measurements and charting the results to support or confirm a diagnosis of asthma.

Peak flow recordings can be used to aid diagnosis using serial peak flow measurements and charting the results to support or confirm a diagnosis of asthma. Peak flow measurements can also assess level of asthma control and be used as part of a self-management plan (NICE, 2021). The NICE guideline on asthma diagnosis (2021) states that peak flow variability can confirm a diagnosis of asthma. NICE literature reviews undertaken as part of the NICE (2017) guidance on asthma diagnosis and monitoring highlights four studies with good methodology which support the use of peak flow to aid diagnosis and home monitoring in adults and children (den Otter et al, 1997; Thiadens et al, 1998; Ulrik et al, 2005; Brouwer et al, 2010).

Halpin et al (2019) undertook a post hoc study analysis to assess if peak expiratory flow (PEF) correlated with spirometry forced expiratory volume (FEV1) as a lung function endpoint during research studies

on adults with confirmed asthma, where monitoring took place both in clinics and at home. There was a positive correlation in this study population. However, in day-to-day clinical practice, there may be more inaccurate technique and recording of peak flow than in a trial setting (NICE, 2017). Peak flow monitoring can be performed by most people over the age of five provided that they are able to master the technique required (Brouwer et al, 2010). Low range peak flow meters are available for children.

PEAK EXPIRATORY FLOW RATE

Peak expiratory flow rate (PEFR) is expressed in litres per minute (L/min) starting from full inspiration and is the maximal expiratory flow rate generated (*Figures 1* and *2*). PEFR measures the larger airway flow and is measured in the first 200millisecond (Gerald and Carr, 2024). Normal peak flow values can vary from person to person and are dependent on factors such as sex, age, height and ethnicity (Quanjer, 2013). PEFR is generally higher in males and taller people. The body's circadian rhythm influences a normal diurnal variation in respiration, with the lowest lung function values in the morning and the highest at 4.00pm in the afternoon (Rhee and Kim, 2015). This normal diurnal variation is exaggerated with symptomatic asthma (Bagg and Hughes, 1980). Predicted values are used as a guide with height alone used for children (*Figures 3* and *4*), and once a person's personal best is known, it should be used as their personal reference point (Reddel et al, 2004).

Figure 1.
Peak flow meter.

Figure 2.
Correct way to hold a peak flow monitor.

PEFR increases through childhood and adolescence and decreases with age, usually from about 40 years. It is dependent on good technique, muscle strength and lung recoil. Therefore, other chronic conditions may affect the manoeuvre required and other factors, such as obesity, will impact the results (Hakala et al, 2000; Pearce, 2023).

"The aim of serial peak flow monitoring is to assess for variability in the results, specifically diurnal variation.

PEAK FLOW METERS AND READINGS

Healthcare professionals require the skills and knowledge to teach correct technique for using a peak flow meter (PFM) (*Box 1*) and how to interpret and document the results. This involves investing time, which will not only support a correct diagnosis, but also the person with self-management should a diagnosis of asthma be confirmed. Peak flow meters are a potential hazard in the healthcare setting if they are not cleaned correctly or used with one-way mouth pieces, and should be for single-patient use (Weller and Levy, 2002). They are available on prescription and some pharmaceutical companies will provide a supply of peak flow meters and charts to record the results. The chart FP1010 is also available for primary care organisations and 32 weeks of recording can be documented.

Although there are no recent studies, there is generally thought to be variability between different peak flow meters and so the same meter should be used for all readings (Jackson, 1995). The author suspects that the lack of more recent comparator studies is as a result of the development of digital peak flow meters, which will be discussed in this article.

A one-off peak flow reading is insufficient for a diagnosis of asthma. During the consultation, it is important to ensure that one peak flow reading is documented in clinical notes and that the person has a peak flow meter and chart to document the results — ideally before treatment is started unless there is clinical urgency. If treatment is commenced with controller medications, such as inhaled steroids, this may hinder accurate objective diagnosis (Levy et al, 2023). Measurements should be taken at least twice daily — morning and early evening — for two weeks, and particularly at times when symptoms are present. The aim of

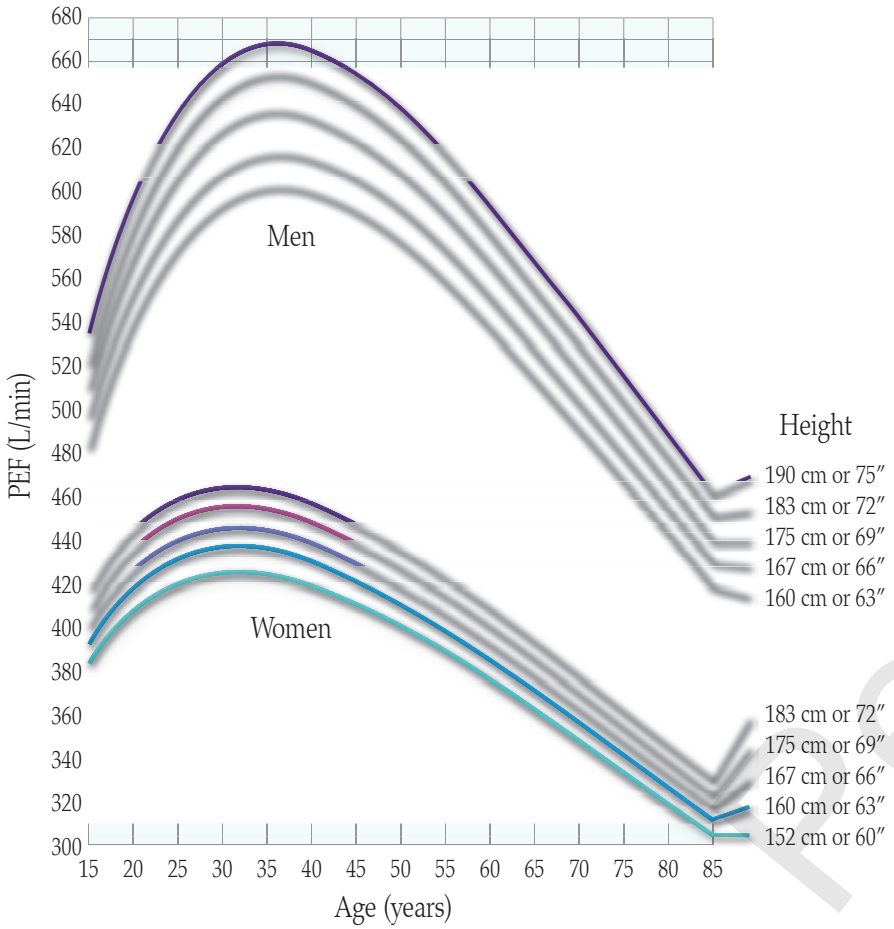

Figure 3.
Normal values for peak expiratory flow (PEF).

Height (m)	Height (ft)	Predicted EU PEFR (L/min)	Height (m)	Height (ft)	Predicted EU PEFR (L/min)
0.85	2′9″	87	**1.30**	4′3″	212
0.90	2′11″	95	**1.35**	4′5″	233
0.95	3′1″	104	**1.40**	4′7″	254
1.00	3′3″	115	**1.45**	4′9″	276
1.05	3′5″	127	**1.50**	4′11″	299
1.10	3′7″	141	**1.55**	5′1″	323
1.15	3′9″	157	**1.60**	5′3″	346
1.20	3′11″	174	**1.65**	5′5″	370
1.25	4′1″	192	**1.70**	5′7″	393

Figure 4.
Paediatric normal values.

serial peak flow monitoring is to assess for variability in the results, specifically diurnal variation.

Diurnal variation is calculated as the day's highest minus the day's lowest reading, divided by the mean of the day's highest and lowest and then averaged over the week (Levy et al, 2023). Fortunately, there are many online tools to assist with these calculations, such as Aerolib Tools. Increased diurnal peak expiratory flow is defined as a mean variability of >10% in adults and >13% in children aged five to 16 years (Levy, 2023). NICE (2017) states that a value of more than 20% variability after monitoring at least twice daily for two to four weeks is regarded as a positive result.

A diagnosis of asthma can also be confirmed by both an improvement in symptoms and of >20% PEF after four weeks of treatment with an inhaled corticosteroid (GINA, 2022). The peak flow recordings seen in *Figure 5* are an example of a patient's home peak flow recordings. In *Figure 5*, on the left are the diagnostic readings and, on the right, week four to five after starting an inhaled steroid. These readings were a good visual aid not only for the author as the clinician, but also for the patient to see the impact of the inhaled steroid on lung function along with resolution of symptoms.

Home serial peak flow and charting of results needs to be accurate, but with busy lifestyles it can easily be forgotten. The author's own clinical experience while explaining the technique to patients was to acknowledge how easy it is to forget, but to stress that regular monitoring is only for a short period of time, and that if it is not done to leave that section blank on the peak flow chart. Concordance with peak flow monitoring has been shown to be good for short periods of time, but limited for prolonged use (Côté et al, 1998).

If occupational asthma is being considered, serial peak flow monitoring should be started ideally four times a day, seven days a week, with onward referral to an occupational/respiratory specialist (Pearce, 2022).

Bronchodilator reversibility testing can be undertaken, but tends to be used more for differential diagnosis with COPD where spirometry is the device of choice (Janson et al, 2019). Although reversibility testing can be performed using a peak flow meter, positive results will only occur if the person is symptomatic at the time of taking the test. A negative test does not exclude asthma (GINA, 2022). A reversibility test using a peak flow meter is where a baseline PEFR is recorded, then two to four puffs of salbutamol taken, and PEFR repeated 15 minutes later. If post salbutamol results demonstrate an increase of >20%, a positive test is confirmed.

Once a diagnosis of asthma has been confirmed and asthma control gained with a good response to treatment, should home monitoring

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1. Moloney S, Fitzgerald D, Roshan D, Gethin G. Impact of hidradenitis suppurativa-specific wound dressing system on patient quality of life and dressing-related pain: pilot study. J Wound Care. 2022 Nov 2;31(11):898-906. 95% CI, P <0.001 HidraWear is clinically proven to show 95% of patients will experience a significant benefit Vs previous management solution. Patients experience a significant improvement in dermatological quality of life (19.4 down to 4.6 DLQI Scoring) using HidraWear Vs traditional wound dressing products and techniques, 95% CI, P <0.001

DAY070 v1

of peak flow be continued on a regular basis? Personalised asthma action plans (PAAPs) are recommended in all national and international guidelines as a means of empowering self-management. They are useful for clarifying medication usage and identifying declining asthma control.

McGrath et al (2001) undertook a review of eight randomised controlled trials (RCTs), one review and one consensus report to identify if peak flow monitoring should be consistently recommended for all people with a diagnosis of asthma. Six of these studies showed home-based peak flow monitoring action plans demonstrated improvements of asthma mortality. However, symptom-based action plans also observed improvements in asthma control. The authors concluded that these studies did not confer an advantage of regular home-based peak flow monitoring over symptom-based. The frequency of long-term home peak flow monitoring depends on the individual person, hence the term personalised asthma action plan.

For people who do not recognise deteriorations in asthma control, often defined as 'poor perceiver of symptoms', or those people with difficult or moderate-to-severe asthma, regular peak flow monitoring can be helpful to provide an early warning of worsening asthma (GINA, 2022).

Box 1 Peak flow technique

Ensure person stands or sits upright.

Ensure the marker is at the bottom of the scale with no restriction to the movement of the marker (see *Figure 1*).

Hold peak flow meter horizontally to mouth.

Breathe in deeply then seal lips around the mouthpiece and breathe out as quickly as possible — it is the initial expiration that provides the result.

Record the result, reset the marker to zero. Repeat the process three times and choose the highest score of the readings and compare with the predicted values.

Ensure that person has the ability to perform the technique and understands how to record the results.

The additional benefit of regular monitoring of objective measurement of peak flow and subjective symptoms may help identify exposure to trigger factors which cause a decline in asthma control. Those with stable asthma and an understanding of asthma symptoms may only need to measure PEFR occasionally, and increase monitoring when they start to develop asthma symptoms or are exposed to triggers factors or respiratory viruses (Gerald and Carr, 2024).

Peak flow reading before and after treatment is useful in the acute management of asthma exacerbations in adults to assess improvement (GINA, 2022). In children as air trapping increases, PEF may give a misleading normal reading (Eid et al, 2000). As always, the whole of the clinical picture should be taken into account when monitoring anybody with an acute exacerbation of asthma (BTS/SIGN, 2019).

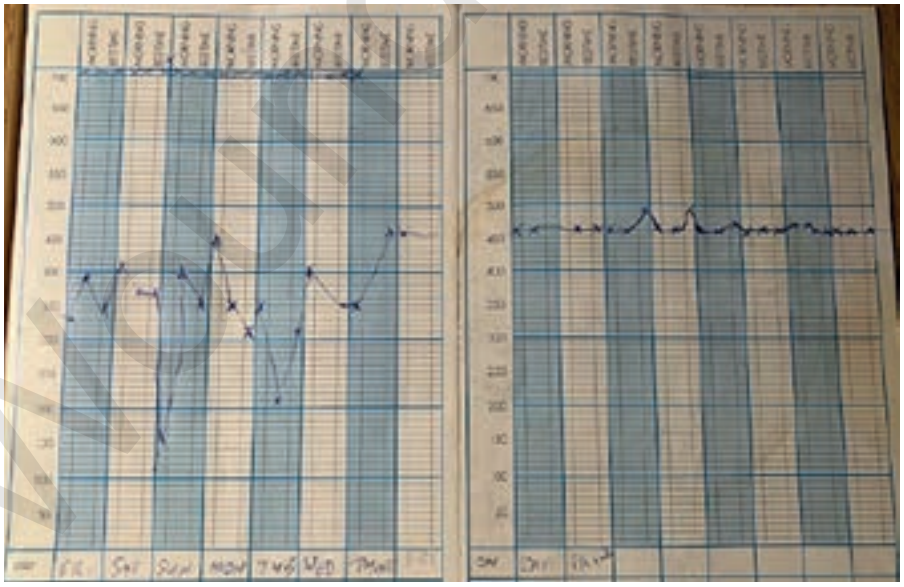

Figure 5.
Patient home peak flow recording.

ELECTRONIC PEAK FLOW METERS

New technology in the form of an electronic peak flow meter has been developed. The smart peak flow is a digital peak flow meter and tracking tool which is linked to a downloaded app compatible with smartphones. The peak flow meter is plugged into the smartphone by the headphone jack port, or the use of bluetooth, and data is automatically recorded. This provides an electronic asthma action plan. The NICE (2022) review of this device reports that they passed bench tests for accuracy, but there are no or limited studies evaluating the effects on clinical or patient-reported outcomes and further research is needed.

The advantages of this type of device are:

- Long-term storage of data
- Data can be remotely shared with clinicians
- Data automatically populates an asthma action plan

(NICE, 2022).

In the author's opinion, once validated against current gold standard in peak flow meters, these devices have the potential to be attractive, particularly to the younger population as they may fit better with lifestyles.

Within all guidelines, spirometry is recommended as the preferred test for airway obstruction. As asthma is recognised by airway variability, isolated spirometry results may be normal and a diagnosis of asthma may be missed. Microspirometers could be used but with a cost, recording and interpretation of results complexity (Levy et al, 2023). NICE also recommends fractional exhaled nitric oxide (FENO) testing alongside spirometry. These tests are not practical in general practice and diagnostic hubs in the community are as yet not fully established. This leaves us with PEFR measurements, which are still mentioned in the guidelines.

CONCLUSION

Peak flow meters are portable, inexpensive handheld devices which provide a simple measurement with instant results to aid diagnosis and self-management. Technologies such as smart peak flow meters may be attractive to individuals and have the potential to progress the role of peak flow monitoring. Being able to teach and check peak flow technique and interpret the results is a key part of diagnosis and ongoing asthma self-management. All healthcare professionals involved in respiratory care, particularly asthma, should have a good understanding and knowledge to provide this aspect of care. GPN

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How to manage Lyme disease in primary care

Due to its diverse manifestations, Lyme disease (caused by the bacterium *Borrelia burgdorferi*) can present as a diagnostic challenge. This article will help practitioners to recognise Lyme disease in all its formats, ensure that history-taking and assessment are appropriate, and to consider other differentials while considering Lyme disease as the most likely diagnosis. Additionally, clinicians need to be able to manage the presentation appropriately using up-to-date guidelines. There will also be some discussion about the sequelae of Lyme disease — treated or untreated — and the impact of global warming on arthropod disease generally, including Lyme disease.

KEY WORDS:

- Lyme disease
- Assessment
- Diagnosis
- Management
- Sequelae

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EPIDEMIOLOGY

Lyme disease, or Lyme borreliosis, is a bacterial infection caused by a group of spiral-shaped bacteria (spirochetes) which are transmitted to humans following a bite from an infected tick (Shapiro, 2014; Coburn et al, 2021). Lyme disease is caused by a group of bacteria termed *Borrelia burgdorferis* sensu lato (sl). *B. burgdorferi* sl is further classified into several geno-species, which are recognised as human pathogens:

- *B. burgdorferi* sensu stricto (ss)
- *B. afzelii*
- *B. garinii*
- *B. bavariensis*
- *B. mayonii*
- *B. speilmanii*.

Several geno-species exist in Europe, however *B. afzelii* and *B. garinii* are the two major European pathogens. *B. burgdorferi* ss is the dominant species encountered in North America. *B. mayonii* has more recently been recognised as another rarer cause of Lyme disease in North America.

“Ticks have larval, nymph, and adult stages, and require a blood meal at each stage. ... The longer an infected tick is attached, the more likely it is to transmit infection.

The name ‘Lyme disease’ originates from an investigation into a cluster of suspected juvenile rheumatoid arthritis cases that were associated with tick bites in the town of Old Lyme (Connecticut, USA). The disease was originally referred to as ‘Lyme arthritis’ (National Institute for Health and Care Excellence [NICE] 2018a).

Clinical manifestations can vary geographically, which may be due to the difference in the predominant geno-species found in the different areas. For example, *B. burgdorferi* (mainly USA) tends to be associated with arthritis, whereas *B. garinii* (Europe and Asia) is linked to neurological disease. Dermatological manifestations *acrodermatitis chronica atrophicans* and *borrelial lymphocytoma* occur only in Lyme disease acquired in Europe (Shapiro, 2014).

All species belonging to *B. burgdorferi* sl are transmitted to humans by Ixodes ticks. Ticks have larval, nymph, and adult stages, and require a blood meal at each stage. They do this by attaching to an animal host and have one continuous blood meal, lasting for hours or days. The longer an infected tick is attached, the more likely it is to transmit infection.

Tick larvae and nymphs feed primarily on small rodents and birds, while adult ticks feed on a variety of mammals besides humans, including deer, domestic and wild carnivores, and larger domestic animals (NICE, 2018a).

Borreliae are usually transmitted to humans by nymph or adult ticks. Nymphs are the most likely to transmit infection, as they can remain very small even after a feed (about the size of a poppy seed), and so are likely to be missed and to remain attached to the skin for longer (Healthline, 2018).

In England, it is estimated that between 4 and 10% of ticks may be infected, although this varies by location. They take in the bacteria from an infected animal they feed on, and once infected, remain so for life (NICE, 2018a).

INCIDENCE

Lyme disease UK (2023; https://lymediseaseuk.com) says that incidents of the illness are on the rise, with official estimates putting the number of cases at around 3,000–4,000 in England and Wales annually. However, the real numbers could be 'at least three times higher' (Lyme disease UK, 2023). It is also estimated that around 4–10% of ticks in the UK carry Lyme disease (UK Health Security Agency [UKHSA], 2022).

The UKHSA advised in 2022 that:

It has been estimated that, in addition to the laboratory-confirmed cases, there are also between 1,000 and 2,000 additional cases of Lyme disease each year in England and Wales that are not laboratory-confirmed.

Laboratory-confirmed cases of Lyme disease in England and Wales have risen steadily since reporting began in 1986, although yearly fluctuations have been observed. Mean annual incidence rates for laboratory-confirmed cases have risen from 0.38 per 100,000 population for the period 1997 to 2000, to a peak of 2.77 cases per 100,000 population in 2018 (Gov.UK, 2022).

RISK FACTORS AND PROGNOSIS

Risk factors for Lyme disease include occupational and recreational exposure to woodland and fields — particularly in areas with a higher incidence of infection and there is also an increased risk according to the duration of tick attachment.

Transmission of *B. burgdorferi* from infected nymphal ticks generally occurs after 36–48 hours of attachment, but transmission from adult ticks occurs after 48 hours or more. Most people will recover completely with appropriate treatment (NICE, 2018a).

"Borreliae are usually transmitted to humans by nymph or adult ticks. Nymphs are the most likely to transmit infection, as they can remain very small even after a feed (about the size of a poppy seed)... ."

Antibiotic treatment in people with early Lyme disease is highly effective and reduces the risk of further symptoms developing, and increases the chance of complete recovery (Shapiro, 2014; NICE, 2018a).

There is evidence that suggests complete response rates are over 90% for the treatment of erythema migrans (an expanding rash) (Torbahn et al, 2018). Re-infection can occur in people who have had another tick bite, but relapse after appropriate antibiotic treatment has not been reported (Cruickshank et al, 2018). As would be expected, there are higher rates of transmission and infection during spring and summer months.

PRESENTATION

The natural progression of people with untreated Lyme disease who become symptomatic can be divided into three stages, namely (Cruickshank et al, 2018; Bobe et al, 2021; Primary Care Dermatology Society [PCDS], 2022):

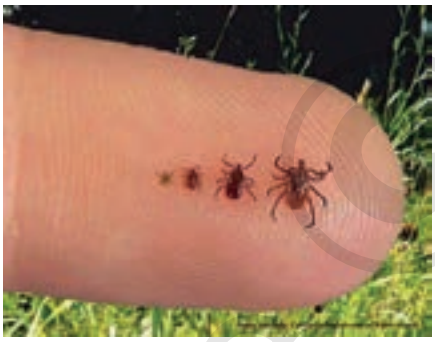


Figure 1.
Ticks and nymphs.

- Stage 1 (early localised reaction): this is commonly characterised by an expanding target-like rash of erythema migrans which occurs from one to 36 days after a tick bite (up to a third of people with Lyme disease do not have an erythema rash or any rash). Other symptoms such as non-specific flu-like symptoms (for example, fatigue, fever, headache) may occur. If not treated, the rash usually lasts three to four weeks, but can last for months. Without treatment, up to two-thirds of people go on to develop further symptoms
- Stage 2 (early disseminated rash): may develop several weeks or months after the initial infection. The person may have small (less than 5cm in diameter) multiple secondary erythema migrans lesions, arthritis, carditis (inflammation of the heart), cranial nerve palsy, aseptic meningitis, or radiculopathy (commonly referred to as a pinched nerve)
- Stage 3 (late disseminated disease): may present months or up to several years after the initial infection and can involve the joints (oligoarthritis also known as Lyme arthritis), the skin (acrodermatitis chronica atrophicans), and the peripheral and central nervous system.

It is important to note that these stages are not clearly delineated in time, but rather a possible process which can progress to late disease in a small minority of people who have either been untreated or inadequately treated — thus, these discussions should be used as guidelines only.

A small minority of people will have persisting symptoms of fatigue, pain, or joint or muscle aches longer term after appropriate treatment. This is sometimes called post-treatment Lyme disease syndrome or chronic Lyme disease. Investigation (a blood test) is usually negative and there is no evidence that long-term antibiotic treatment is helpful. There is no proven treatment, but symptoms usually get better over time. Studies vary widely in results of how often this occurs, and there is a high prevalence of the same symptoms in control groups (Centers for Disease Control and Prevention [CDC], 2022; UKHSA, 2023; Skar and Simonsen, 2024).

MANAGEMENT OF ACUTE CASES OF ERYTHEMA MIGRANS

Primary (or solitary) erythema migrans has the following features (PCDS, 2022).

Appearance

A spreading erythema with a well-defined edge, which is usually round or oval in shape, but may be triangular or linear, and is red, purple or bluish-red in colour. Usually flat, but may be palpable, and there may be a central punctum, spot, vesicle or pustule.

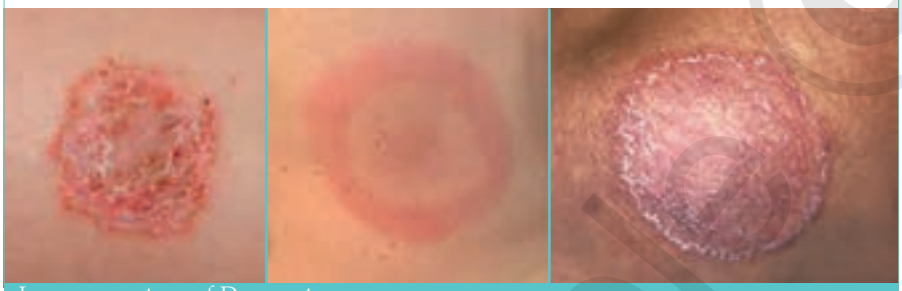
As the rash expands, there may be clearing behind the leading edge, giving the classical annular or bulls-eye appearance. This is much less common in erythema migrans acquired in the USA, where it is more likely to be uniform in colour.

Practice point

Always remove the tick as soon as possible with tweezers or specialised gadgets — keeping head intact (NHS, 2024).

Practice point

Look at these photographs and consider if the rash is Lyme disease or other possible differentials.



Images courtesy of Dermnet.nz.org

Central clearing is more common when the cause is *B. afzelii,* one of the common pathogens in Europe.

There is a good NICE resource for images of erythema migrans to aid diagnosis (NICE, 2018b). Further images are available on the DermNet NZ or Primary Care Dermatology Society websites.

Size

The rash usually expands over days to weeks, and the diameter is usually larger than 5cm (typically around 15cm), and can be as large as 70cm.

Location

The rash appears at the site of a tick bite, often on the legs, at flexor creases (knees, axillae, and groin), around the waistband, under the breasts, near to straps (which impede the forward progress of ticks), or (particularly in children) at the hairline or upper parts of the body.

Timing

The rash usually becomes visible from one to two weeks (but can appear from the first day to 36 days) after a tick bite and lasts for several weeks if untreated.

Associated symptoms

The rash is not usually itchy, hot, or painful. In Europe, around a third of people with erythema migrans experience flu-like symptoms, including fever, headache, tiredness, nausea, vomiting, arthralgia (joint pain), and myalgia (muscle pain). Flu-like symptoms are more common in the USA. Neurological features can be present later in the disease.

COMPLICATIONS OF LYME DISEASE

Secondary (or disseminated) erythema migrans may occur following haematogenous (infection distributed around the body in the bloodstream) dissemination of infection, resulting in multiple lesions, usually smaller than 5cm in diameter (Ursinus et al, 2021).

Erythema migrans may be confused with a number of other skin conditions, so it is important to consider other potential differentials (see below), as misdiagnosis can lead to inappropriate treatment (NICE, 2018a).

SEQUELAE

Neurological symptoms and syndromes can be a feature of early or late disseminated Lyme disease (NICE, 2018a). While early neurological disease can be considered, it is important to be aware of other causes, such as nerve palsies, radiculopathy, meningoencephalitis or myelitis (NICE, 2018a).

There are a wide range of peripheral and central presentations of late neurological Lyme disease. Assessment by an appropriate specialist is recommended to ensure that conditions such as malignancy, multiple sclerosis (MS) and motor neurone disease (MND) are not missed, so referral to a specialist clinic is advised.

There is concern that chronic fatigue syndrome (CFS) and other

illnesses, such as myalgic encephalitis (ME), were/are caused initially by Lyme disease, but so far there is insufficient evidence to support this assumption (Bobe, 2021).

For persisting non-specific systemic symptoms, the UKHSA (2022) website points out that the differential diagnosis for this is extremely wide, and depending on predominant symptoms and presentation, some possibilities to consider are:

- Different viruses, such as cytomegalovirus (CMV) and Epstein–Barr virus (EBV)
- The groups of hepatitis
- Auto-immmne disorders
- Generalised chronic fatigue syndrome.

Basic differentials

Erythema migrans may be confused with a tick bite hypersensitivity reaction or an erythematous skin lesion presenting while the tick is still attached, or which has developed within 48 hours of detachment.

Tick bite hypersensitivity reactions develop rapidly, are usually smaller than erythema migrans — less than 5cm in diameter — and are itchy. They sometimes have an urticarial appearance and typically begin to disappear within 24–48 hours (NICE, 2023a).

Some other less likely differentials include (CDC, 2022):

- Cellulitis
- Erythema multiforme
- Granuloma annulare
- Nummular eczema
- Southern tick-associated rash illness (STARI)

Practice point

Given the potential seriousness of untreated Lyme disease, it is vital to remove the tick promptly and seek medical evaluation if erythema migrans or a similar rash is suspected. Antibiotic treatment is typically recommended for confirmed or suspected cases of Lyme disease to prevent the progression of the infection.

- Spider bites
- Tick-borne encephalitis (TBE)
- Tinea (ringworm)
- Urticaria.

Cellulitis

Cellulitis usually occurs on a limb or at the site of skin trauma. It presents as uniform erythema, which is warm and painful, and has a faster onset than erythema migrans. It may also be present at the same time as erythema migrans.

Erythema multiforme

This appears as multiple target lesions (sometimes blisters). The lesions are small (less than 2cm in diameter), diffuse, and symmetrical, with slow enlargement. Palmar and mucosal involvement is common and there is often an obvious precipitant, such as a recent viral or bacterial infection that has been debilitating.

Granuloma annulare

This skin condition is usually smaller than erythema migrans. The periphery is usually papular, and it can have central clearing.

Nummular eczema

In this condition, the lesions are usually smaller and less erythematous than erythema migrans. They do not enlarge rapidly, are pruritic and well-demarcated and the skin may also be thickened or weepy.

Southern tick-associated rash illness (STARI)

This is a similar rash to erythema migrans, and is seen in southern USA, so can be excluded in the UK.

Spider bites

Spider bites (usually non-UK but sometimes seen) can be necrotic and painful, with swelling to the limb and perhaps a sighting of the spider itself.

Tick-borne encephalitis (TBE)

A tick-borne, flu-like, viral illness that starts two to 28 days after a tick bite. It can progress to meningitis, encephalitis, radiculitis, and myelitis, and can be fatal. It is common in central and eastern Europe, but is never acquired in the UK. Consider those who travel to Europe and are camping in forests and shrubby areas.

Practice point

Has incidence of Lyme disease increased? It is more likely that awareness has increased and treatment has become more streamlined and recognised (London School of Hygiene and Tropical Medicine [LSHTM], 2023).

Tinea (ringworm)

These lesions are characterised by scale and itch (NICE, 2023b).

Urticaria

This presents as multiple raised lesions, which are nettle-like or blotchy, and very itchy. It usually resolves within 24–36 hours and the patient can have a history of atopy.

TREATMENT CONUNDRUMS

It is generally agreed that challenges can occur where the patient has no erythema migrans, presents with an incomplete or uncertain history, has allergy to recommended treatments, or chooses not to take the recommended medications (Stanek et al, 2011).

Generally, choice of treatment is doxycycline or amoxicillin (see Cruickshank et al, 2018; www.bmj.com/content/bmj/suppl/2018/04/12/bmj.k1261.DC1/crum090318.wi.pdf).

Climate change has contributed to a rise of Lyme disease in North America and also Lyme and TBE in Europe (LSHTM, 2023) — will this get worse? Considering that other arthropod diseases, such as dengue, malaria and Zika, are so much more widespread now, all of these insect-borne diseases should be readily considered in warm countries and could become the norm in the UK.

Vaccines (Koch, 2023)

There are some vaccine candidates such as VLA15, developed by Valneva and Pfizer, which is in phase 3 clinical trials at present. VLA15 was built to target the outer surface protein of the *B. burgdorferi* bacteria, called OspA.

OspA is produced primarily by

the bacteria when they are in the tick. Blocking OspA would stop the bacteria from leaving the tick and affecting humans. Additionally, Pfizer indicated that it could submit a Biological License application to the US Food and Drug Agency (FDA) as early as 2025 and Marketing Authorisation Application to the EMA in 2026 subject to positive data, which is awaited.

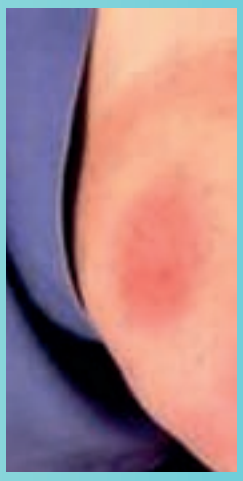
LYMERix was discontinued in 2002 in the USA, possibly due to insufficient use and anti-vaxxers protesting that the vaccine side-effects were worse than Lyme itself (20 years ago when little was known about Lyme).

The possibility of Lyme disease should be considered in people presenting with several of the following symptoms (Bobe et al, 2021), as Lyme disease is a possible (but uncommon) cause of:

- Cognitive impairment, such as memory problems and difficulty concentrating
- Fatigue
- Fever and sweats
- Headache
- Malaise
- Migratory joint or muscle aches and pain
- Neck pain or stiffness
- Paraesthesia
- Swollen glands.

Lyme disease should also be considered when individuals present with focal symptoms involving various organ systems, and a likely history, because it is a possible (but uncommon) cause of:

- Eye symptoms, such as uveitis or keratitis
- Inflammatory arthritis affecting one or more joints that may be fluctuating and migratory
- Cardiac problems — such as heart block or pericarditis
- Neurological symptoms — such as facial palsy or other unexplained cranial nerve palsies, meningitis, mononeuritis multiplex, or other unexplained radiculopathy; or rarely, encephalitis, neuropsychiatric presentations or unexplained white matter changes on brain imaging
- Skin rashes, such as acrodermatitis chronica atrophicans (see below) or lymphocytoma (look at DermNZ for this)
- Borrelial lymphocytoma is a rare manifestation, mainly seen in children. It presents as a painless blue-red nodule, often on the ear lobe, nipple or scrotum. It may present with, before, or after erythema migrans
- Acrodermatitis chronica atrophicans is a late manifestation, presenting months to years after untreated infection, usually in distal extremities, and starting as a slowly progressive red or blueish lesion which can eventually become atrophic and be associated with joint and bone deformity and polyneuropathy.



Jane's story

Jane is 17 and went on an outward-bound expedition in the New Forest last weekend. She presents with a rash. She also feels feverish and has a headache, but it was a very hot weekend. Many of those on the walk saw ticks on their skin, but she is the only one with the rash. Her past medical history has nothing of note, no medications, no allergies, and she is generally fit and well.

What do you need to know and how will you proceed?

Does she need follow-up and further investigations?

TESTING

Much of the diagnosis of this disease is based on relevant history and the presence of a lesion: However, testing is important when checking the presumed diagnosis or if there is doubt around the diagnosis. This is generally done using a blood sample and there are two types of test, ELISA and immunoblot (NICE, 2018c). In the early stages of the disease, the tests may not always be accurate and should be repeated after four to six weeks. Using reputable laboratories and healthcare services is essential, as not all tests, particularly those available online, are evidence-based (NHS, 2024).

MORE RELEVANT HISTORY (CDC, 2022)

If the person may have been bitten by a tick while abroad, consider the possibility of other tick-borne diseases (or possible co-infection), particularly if the person has symptoms atypical of Lyme disease. If symptoms suggest the possibility of Lyme disease, ask how long the person has had symptoms, about their history of possible tick exposure — for example, activities that might have exposed them to ticks, such as travel to areas where Lyme disease is known to be highly prevalent. However, do not rule out the possibility of Lyme disease in people with symptoms but no clear history of tick exposure. Be careful of the diagnosis of Lyme disease in people without symptoms, even if they have had a tick bite (CDC, 2022).

THE FUTURE

Long-term complications are uncommon in people who are treated appropriately. However, even after appropriate treatment, it may take several months for some people to recover fully and others may have residual symptoms, such as chronic fatigue, brain fog and unexplained arthritis and muscle aches (Stanek et al, 2011; Cruickshank et al, 2021).

An incomplete recovery from severe neurological symptoms may occur if treatment has been

started late in the disease, so early treatment after recognition is essential (NICE, 2018a; Bobe et al, 2021). Some people may develop long-lasting neurological conditions, such as chronic meningitis, encephalomyelitis, radiculomyelitis or peripheral neuropathy even with treatment. Most people with meningoradiculoneuritis or facial palsy recover fully over time, but a small number may have residual paraesthesias or facial paresis (NICE, 2018a; Bobe et al, 2021; Ursinus et al, 2021).

In people who have severe tissue damage following acrodermatitis chronica atrophicans (a nasty scaley skin condition), atrophic lesions, peripheral neuropathy and joint deformities may remain. With Lyme arthritis, most people recover completely over a period of months, but about 10% of people have a more prolonged recovery (Ursinus et al, 2021).

CONCLUSION

Healthcare professionals should recognise and consider infection early on in a patient with a likely history and rash and treat promptly. If in doubt seek specialist advice as soon as you can, as this can reduce the occurrence of long-term sequelae and improve patient outcomes safely and effectively. GPN

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Key points

- Due to its diverse manifestations, Lyme disease (caused by the bacterium *Borrelia burgdorferi*) can present as a diagnostic challenge.
- Clinicians need to be able to manage the presentation appropriately using up-to-date guidelines.
- Antibiotic treatment in people with early Lyme disease is highly effective and reduces the risk of further symptoms developing, and increases the chance of complete recovery.

What's the best diet for cancer survivors?

A primary concern for many cancer survivors is getting cancer again or it returning. Unfortunately, recurrence can happen but there is evidence that dietary interventions, generally combined with physical activity, improve overall quality of life and give the body the best chance of warding off recurrence. Being the right weight for height is also important.This article explores dietary and lifestyle considerations, dispels some myths, and considers other aspects of diet and lifestyle and prevention of cancer recurrence, such as alcohol intake, physical activity and food-borne disease. It also looks at the role certain sweeteners may have, along with ultra-processed foods, use of certain supplements and the role of fibre. Definitive evidence is often not available for this aspect of cancer, but this article presents the most up-to-date findings. Specialist post treatment palliative care is not covered.

KEY WORDS:

- Cancer
- Diet
- Health conditions
- Resources

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Photograph: Tatjana Baibakova/Shutterstock

Most eating-related side-effects of cancer treatments go away after treatment ends. But, some side-effects can last for a while and advice should be sought from the care team. Eating well will help regain strength and energy, rebuild tissue, and feel better overall. Experts believe that the same factors that can increase cancer risk might also promote cancer recurrence after treatment (American Cancer Society, 2023a). For instance, research has suggested that the risk of breast cancer recurrence might be higher in women who are obese and do not eat many fruits and vegetables (American Cancer Society, 2023a). Prostate cancer recurrence risk might be higher in men who eat a lot of saturated fats (American Cancer Society, 2023a).

It is important to dispel the myths about cancer and its occurrence and recurrence so as to avoid confusion and following mistaken advice. Taking a quick diet history of what someone is eating, even if it is what they ate yesterday and how that can vary, is a good start to offering guidance (Thompson and Subar, 2001). If there is real concern about the diet, advice of a dietitian should be sought.

General tips for healthy eating after cancer treatment, include:

- As a result of taking certain medications, or the cancer treatment, certain dietary restrictions need to be followed; the cancer specialist/dietitian can advise on these
- The diet should be well balanced with as few restrictions as possible
- Fruits and vegetables are important and it is good to have a variety with all different colours. These contain anti-oxidants, fibre and other essential nutrients
- High-fibre foods, like wholegrain breads and cereals, are important for a number of reasons — for one they can offset bowel cancers (see below)
- Red meat (beef, pork and lamb) should be limited and processed meats avoided as much as possible
- Sugar-sweetened beverages and refined grain products should be limited
- Alcohol is best avoided, but if taken should not be more than one drink per day for women and two for men. Alcohol is a known cancer-causing agent

(adapted from Cancer Research UK, 2022).

ULTRA-PROCESSED FOOD (UPF)

A recent study followed up 4,461 subjects for around 11 years and showed that a higher UPF consumption was associated with an increased risk of the multimorbidity of cancer and cardiometabolic diseases Among UPF subgroups, associations were most notable for animal-based foods, artificial and sugar-sweetened beverages. Other subgroups, such as ultra-processed

Table 1: Cancer myths

Myth	Truth
Taking high dose supplements can help ward off cancer	The opposite is more likely, for example, a high dose of b carotene can increase the risk of lung cancer in those who smoke (World Cancer Research Fund [WCRF], 2018)
Taking a multivitamin and mineral supplement can decrease the risk of colorectal cancer	There is limited evidence for this (WCRF, 2018)
Drinking energy drinks can give an energy boost when recovering from cancer	Drinking energy drinks or high sugar (glycaemic load) foods and drink can increase the risk of endometrial cancer (WCRF, 2018)
An iron supplement may help with tiredness	Check with a qualified medical practitioner that an iron supplement is required. Iron is an oxidising agent and so could lead to cancer formation (Fisher and Naughton, 2004)
Superfoods can help to prevent cancer	There is no such thing as a superfood; it is getting a mixture of many types of healthy foods and a balanced diet that is important, not one food (Surviving Breast Cancer, 2023)
Specific diets can help prevent cancer, e.g. diets that boost the immune system	As above, there is no one diet that prevents cancer, but a healthy balanced diet is important (Surviving Breast Cancer, 2023). In the same vein, no special diet can boost the immune system. However, it is important to have a healthy diet, be physically active, avoid stress and get a good night's sleep. Alcohol, tobacco and other stimulating drugs can lower the immune system function, so avoid these (Chemaly, 2020)
Cutting out certain food groups, such as dairy or gluten containing foods, can help prevent cancer recurrence	Unless there is a proven allergy to specific foods (diagnosed by a qualified medically trained practitioner), no foods or food groups should be cut out of the diet as this may lead to nutrient shortages
Alternative therapies can help prevent cancer	Certain alternative therapies may be able to give comfort and relief, but they are not a cure and should not be used as an alternative to seeking proper medical advice (Surviving Breast Cancer, 2023)
Unpasteurised milk and other foods retain more goodness than pasteurised	Avoid unpasteurised foods. This includes drinks such as unpasteurised cider, raw milk, and fruit juices, and foods such as cheeses made from unpasteurised milk. Some cancer treatments can result in lowered immunity, so it is especially important not to risk eating these foods to avoid getting ill with certain bacteria (UCLA Health, 2018)
You can return to your normal alcohol drinking once you have had the cancer treatment	It is best to avoid alcohol, but if you do want a drink you should have no more than one drink a day for women and two for men (American Cancer Society, 2023b)

breads and cereals or plant-based alternatives, were not associated with risk (Cordova et al, 2023). It is the author's opinion that this association may, at least, be partly due to the fact that a higher consumption of UPFs is a marker of a poor diet, so other factors could also have been causing the increased risk.

IMPORTANCE OF A HEALTHY WEIGHT

Weight changes, either losing or gaining too much weight, are a sign of a poor diet and/or an indication of poor health. It is beyond the scope of this article to delve into weight loss or weight gain treatment, but it should be individualised and best discussed with a professional team, in particular a dietitian.

DISCRETIONARY FOODS

Some foods and drinks do not fit into any healthy food groups essential for good health (such as dairy, fruit and vegetables) because they are not necessary for a healthy diet. They are sometimes known as HFSS foods or drinks — that is high in saturated fat, salt and sugar, low in fibre and alcohol, and usually high in calories too. Many tend to have low levels of essential nutrients, so are often referred to as 'energy-dense' but 'nutrient-poor' foods (Food Standards Scotland, 2018). The problem is that they can take the place of other more nutritious foods. Also, the higher levels of calories, saturated fat, added sugars, added salt and/or alcohol that they contain are associated with increased risk of obesity and chronic disease, such as heart disease, stroke, type 2 diabetes, and some forms of cancer. Examples include sweets, crisps, biscuits, alcoholic drinks, pies and pastries (eatforhealth, 2021). It is advisable for people wanting to lose weight to do so by cutting down on these discretionary foods first.

Some evidence suggests that a low-fat diet, a high-quality diet, and a prudent diet are beneficial for breast cancer survivors, while a Western diet is detrimental (Jochems et al, 2018). There are four principles for a prudent diet:

1. Avoid excess energy (calorie) intake
2. Increase dietary fibre
3. Reduce total fat intake to approximately 30% of energy intake
4. Take a lower proportion of fat as the saturated form

(Adapted from Mann, 1979).

IMPORTANCE OF FIBRE

Fibre in the diet comes mostly from wholegrain foods. It helps to ensure a healthier digestive system and reduces the risk of bowel cancer (Everyday Health, 2014). Fibre can also help in the prevention of diseases such as diabetes and heart disease. Wholegrain foods contain the outer layer of grain and are rich in fibre, vitamins and minerals. Once this outer layer is removed in the refining process, these benefits are lost. This is why refined versions of the same food, like white bread, have

Practice point

Being overweight or obese ups the risk of several cancers (Centers for Disease Control and Prevention [CDC], 2023).

fewer nutrients and less fibre, even if the manufacturers 'enrich' the product with added nutrients. This is also why embarking on diets that severely cut down or exclude carbohydrates, such as Atkins, can be detrimental for health, because the important fibre is severely reduced (Bilsborough and Crowe, 2003). The majority of people do not get sufficient fibre in the diet as it is (British National Formulary [BNF], 2023; Cancer Council, 2023).

Fiber can help to prevent cancer by:

- Binding carcinogens to the stool where they are then expelled from the body; a rapid transit time (within reason) means that the carcinogen does not linger and cause damage to the gut. Fibre increases transit time
- Being a food to the good bacteria (also known as prebiotics). Fiber is also converted by them into short-chain fatty acids (SCFAs), such as butyric acid. These SCFAs can reduce the ability of cells in the intestine to become cancerous

(Cancer Council, 2023).

High fibre foods include wholegrain versions of:

- Bread, muffins, crispbread, pasta and crumpets
- Breakfast cereals or muesli
- Cracked wheat (bulgur)
- Rice
- Corn
- Oats
- Rye
- Buckwheat
- Millet
- Quinoa

(Cancer Council, 2023).

ALCOHOL AND CANCER

The leading author of a recent paper on alcohol and cancer pointed out that:

> *Many people now know that smoking causes cancer, but unfortunately, many people do not know about the association of alcohol with cancer.*

(Shi et al, 2023).

The study included more than 15,000 adults with a cancer diagnosis (current and survivors) who were asked about their drinking habits — nearly 80% were current drinkers. Among current drinkers, 13% consumed a moderate amount of alcohol in a typical day, while close to 40% engaged in hazardous drinking, such as binge drinking; in a typical day, 24% engaged in this, consuming six or more drinks on a single occasion. This is despite the fact that drinking alcohol can increase a person's risk for a variety of cancers, including oral and pharyngeal cancer, oesophageal, colorectal, liver, and female breast cancers (Shi et al, 2023). The authors concluded that given the societal norms surrounding alcohol and the general lack of awareness of alcohol's short and long-term impact on cancer outcomes, gently educating patients/survivors about potential risks while understanding the cultural and societal contexts of drinking can make a difference (Shi et al, 2023).

In the light of this evidence on alcohol and cancer, most cancer charities say it is best not to drink, but if a person chooses to drink, they should have no more than one drink a day for women and two for men. Furthermore, the more that is drunk, the higher the cancer risk (American Cancer Society, 2023a; b).

In cancer survivors, alcohol intake leads to an increased risk of recurrence. For example, in breast cancer survivors having more than three to four drinks a week leads to a higher risk of recurrence (Surviving Breast Cancer, 2023).

VITAMINS AND SUPPLEMENTS

Sometimes people think taking certain vitamins, herbs, or other dietary supplements will give them an extra edge in preventing recurrence. As seen in *Table 1*, available research does not support this belief. In fact, some research has shown that supplements containing high levels of single nutrients (greater than the recommended intake) may have unexpected harmful effects on cancer survivors (*Table 1*; American Cancer Society, 2023a). If vitamin or mineral status is suspected of being too low, blood tests can be done by a medical professional and appropriate supplements prescribed.

CARDIOVASCULAR HEALTH AFTER CANCER TREATMENT

For the past few decades, oncologists have focused primarily on 'curing' cancer. While patients are now living longer after being diagnosed with cancer, the treatment for cancer can leave them vulnerable to detrimental effects on cardiovascular health and cardiorespiratory fitness. Thus, experts are pointing out that there is a growing need to promote heart health for cancer survivors and are calling for cardiac rehabilitation programmes for patients who are undergoing or have recently completed anticancer therapies (Medscape, 2023).

In 2019, the American Heart Association recommended that cardio-oncology rehabilitation programmes for cancer survivors be based on structured physical activity and adopting healthy lifestyle habits, including diet (American Heart Association, 2019).

PHYSICAL ACTIVITY

Studies have shown that regular physical activity can reduce the anxiety and depression caused by having had cancer, improve mood, boost self-esteem, and reduce symptoms of fatigue, nausea, pain, and diarrhoea (Macmillan Cancer Support, 2019). Physical activity together with nutritional support can reduce the risk of sarcopenia and its consequences and enhance quality of life (Gouez et al, 2022). These benefits can be gained through moderate to vigorous physical activity on most, if not all days of the week. Recommendations also suggest less time spent sitting or lying and a

Practice point

As a general rule, a little bit of physical movement is far better than none. It is best to start slowly and build up over time. When choosing an activity, it is important to think about the physical abilities of the person and to do something they enjoy (American Cancer Society, 2022).

return to normal daily activities as soon as possible. Those recovering from cancer should check with their cancer team if it is appropriate for them to exercise and whether there are any restrictions (American Cancer Society, 2022).

FOOD-BORNE ILLNESS

Food-borne illness happens when harmful bacteria, viruses or fungi contaminate food and make the person who eats the food sick. It is important to be sure that food is safe, as some cancer treatments weaken the immune system, which can raise the risk of infections from food-borne pathogens. After treatment, it may take a little time to get back to full strength (Rocky Mountain Cancer Centres, 2023). Those recovering from cancer should check with their cancer care team whether they still need to be extra vigilant after treatment and Macmillan Cancer Support (2020) have some good advice on food hygiene.

ASPARTAME AND CANCER RISK

Aspartame is a widely used artificial sweetener which, in July 2023, was classified as a substance that may cause cancer by the International Agency for Research on Cancer (IARC) and the joint Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) Expert Committee on Food Additives (JEFCA). However, no new acceptable daily intake has been set as the evidence has not been deemed to be strong. The World Cancer Research Fund has continued to quote its advice to limit consumption of sugar-sweetened drinks and to drink mostly water and unsweetened drinks.

Apartame is found in several popular drinks and foods, such as yogurts and desserts, as a way of reducing the sugar content while retaining sweetness.

It will be on the label as aspartame or E number 951 if people want to avoid it (World Cancer Research Fund, 2023).

MEDITERRANEAN DIET

As has been alluded to before, there is no one diet that can prevent cancer or recurrence. However, overall cancer incidence has been observed to be lower in Mediterranean countries compared to that in Northern countries, such as the UK. Further, studies show that a Mediterranean diet can help protect against breast cancer risk and its recurrence and it is associated with lowering risk of mortality in colorectal and prostate cancer survivors (Schwingshackl and Hoffmann, 2016; Castro-Epsin, 2022).

Photograph: Leka Leek/Shutterstock

Figure 1.
Mediterranean diet pattern.

Checklist...

... of questions that recoverees should ask after cancer treatment include:

- Do you have any diet or nutrition recommendations I should follow?
- How can I make sure I'm getting enough nutrition during my recovery?
- Who should I tell if I have concerns about changes to my weight?
- What kind of exercise can I do during cancer treatment?
- Are there any foods I should avoid during cancer treatment?
- Who can I talk with if I'm interested in taking a dietary supplement during my cancer treatment?
- How can I prevent food-borne illness?
- Can you recommend a registered dietitian I can work with?

A recent search of the PubMed database for articles on the Mediterranean diet and cancer, published between 1 January 2000 and 12 June 2023, showed that the Mediterranean diet is inversely associated with risk, or is risk neutral, for most types of cancer. It is reassuring to note that that benefit is reproduced in studies performed in different populations and environments (Bussell, 2022; Monllor-Tormos et al, 2023). However, more evidence is needed as currently most studies have been observational.

The diet may work as a cancer preventative because it emphasises healthy fats, wholegrains, fruits, vegetables, beans, nuts, and seeds (*Figure 1*). Indeed, those that follow it consume more anti-cancer polyphenols, more fibre and less processed meat.

CONCLUSION

There is no guarantee that a certain type of diet can prevent cancer recurrence, but there is some evidence that the same diet that can help prevent cancer in the first place, such as eating a healthy diet, being the right weight for height and watching alcohol intake, may help to prevent cancer recurrence too. It appears that the Mediterranean diet, which can help offset health conditions such as heart disease and diabetes, may also be key in preventing cancer and its recurrence. Cancer tracks with other diseases, so a diet for general good health is the best for avoiding cancer and its recurrence. However, more research is needed in this area. GPN

Summary of recommendations for reducing cancer recurrence

- Eat foods which are nutrient rich and in amounts that allow for a healthy body weight; this may mean there is less room for discretionary foods (see above), especially if trying to lose weight
- Eat fruits, especially whole fruits with a variety of colours
- Limit or avoid red meat (beef, pork, lamb) and processed meats (foods like hot dogs, sausages, and luncheon meats)
- Select foods made with wholegrains rather than refined grains and sugars
- Avoid sugary beverages
- If overweight, consider losing weight by cutting calories (especially from discretionary foods) and increasing activity to get to and stay at a healthy weight (check with the cancer care team before starting an exercise programme).

(American Cancer Society, 2023)

Further help

The World Cancer Research Fund (WCRF) has launched a helpline about nutrition and living with cancer. It was developed to offer a trusted source of information to help support with cancer treatment and recovery; it addresses issues such as taste changes, appetite loss, nausea, constipation and how to maintain a healthy weight (WCRF, 2023).

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Key points

- Cancer recurrence can happen but there is evidence that dietary interventions, generally combined with physical activity, improve overall quality of life and give the body the best chance of warding off recurrence.
- Fibre in the diet comes mostly from wholegrain foods. It helps to ensure a healthier digestive system and reduces the risk of bowel cancer.
- In cancer survivors, alcohol intake leads to an increased risk of recurrence.
- Some research has shown that supplements containing high levels of single nutrients (greater than the recommended intake) may have unexpected harmful effects on cancer survivors.
- The Mediterranean diet can help protect against breast cancer risk and its recurrence and it is associated with lowering risk of mortality in colorectal and prostate cancer survivors.
- Cancer tracks with other diseases, so a diet for general good health is the best for avoiding cancer and its recurrence.

Frailty and dementia: when they go 'hand in hand'

The population is ageing and so we are seeing an increase in the prevalence and incidence of age-related conditions, such as frailty and dementia. These two conditions can often go 'hand in hand', making it important to ensure appropriate recognition, assessment and then management of each when experienced together. This paper uses a case study approach to illustrate and discuss the issues.

KEY WORDS:

- Frailty
- Dementia
- Recognition
- Assessment
- General practice nurses

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Globally there are more than one billion people aged 60 years or older. As populations are ageing, this demographic transition will affect almost all aspects of society (Kasajima et al, 2022). The population of the UK is ageing, particularly in the oldest old-age groups and by 2045 it is estimated that the number of people aged 85 and above will have almost doubled (Office for National Statistics [ONS] 2022).

Similarly, there are approximately 50 million people living with dementia across the world, and this number is estimated to increase to 152 million by 2050 (World Health Organization [WHO], 2022). Livingston et al (2020) in reporting on dementia prevention, intervention, and care identified both modifiable and non-modifiable risk factors for dementia. There are 12 risk factors (see below), that if modified, could prevent or delay 40% of cases of dementia (Livingston et al, 2020). However, of the non-modifiable risk factors, ageing is the most common (Harrison Dening, 2023). In the UK, it is estimated that there are currently 944,000 people living with dementia (Wittenberg et al, 2019). However, many people with dementia may also have other comorbid conditions in addition to their dementia.

"There is growing evidence that older people often have complex health and social care needs with most having at least one long-term condition, increasing to two by the age of 75 years old.

DEMENTIA

Dementia is a syndrome that is characterised by a progressive deterioration of cognition and the ability to perform activities of daily living (Sandilyan and Dening, 2019). It is associated with a high burden of dependency and disability and has a large emotional, economic, and psychological impact on both families affected (Livingston et al, 2020) and society (WHO, 2022).

DEMENTIA AND OTHER COMORBID CONDITIONS

There is growing evidence that older people often have complex health and social care needs with most having at least one long-term condition, increasing to two by the age of 75 years (Reeves et al, 2023). On average, older people with dementia are likely to have 4.6 chronic conditions besides dementia (Tonelli et al, 2017), with further evidence suggesting that just over 60% of people with dementia have at least three comorbid conditions in addition to their dementia (Scrutton and Brancati, 2016). Many people with dementia will also be diagnosed as being frail (Gale et al, 2015; Kasajima et al, 2022).

FRAILTY

Frailty is a long-term state of health characterised by a decline

in functioning across multiple physiological systems, accompanied by an increased vulnerability to stressors, both internal and external to the person (Hoogendijk et al, 2019). This may be characterised by slow or incomplete recovery from infection, surgery or psychological distress. It is agreed that frailty is related to the ageing process, in which multi-body system functions weaken, making the person vulnerable to small health changes, which can be triggered by minor events (WHO, 2016).

Frailty (Latin: *fragilita*; brittleness) is an important but incompletely understood clinical concept (Rahman, 2019). It is defined as a clinically recognisable state of increased vulnerability resulting from age-associated decline in reserve and function across several physiologic systems such that the ability to cope with everyday or acute stressors is compromised (Xue, 2011). Fried et al (2001) first described five phenotypic criteria: low grip strength, low energy, slowed waking speed, low physical activity, and/or unintentional weight loss, where having three out of five (or more) indicate frailty,and where having two of the five indicate a pre-frail state with a high risk of progressing to frailty (Xue, 2011). However, others have proposed frailty can be seen as an increase of deficits accumulated over time and have operationalised this by developing a frailty index which includes:

- Disability
- Diseases
- Physical and cognitive impairments
- Psychosocial risk factors
- Geriatric syndromes (for example, falls, delirium, and urinary incontinence)

(Mitnitski et al, 2001; Rockwood et al, 2007).

Whichever model or approach is used to define and categorise the presence and degree of frailty, it has received increasing scientific attention as a way of understanding health diversity among older adults (Kojima et al, 2019). With an ageing population and increasing numbers of people with both dementia and frailty, the support for older people living with frailty and dementia has been identified as both national and international priorities (WHO, 2017; NHS 2019a; NHS 2019b).

RISK FACTORS FOR FRAILTY AND DEMENTIA

Diagnostic labels can be convenient shorthand, but what frailty and dementia both have in common is that they rarely 'travel alone'. In other words, it is quite unlikely that someone will simply be 'frail' or someone will simply be living with dementia (Rahman, 2019).

The Lancet Commission has produced two reports on the risk factors for dementia with a third in planning stage. In the first, an interdisciplinary, international group of experts performed systematic reviews and meta-analysis of studies and identified nine potentially modifiable risk factors for dementia (Livingston et al, 2017). In the second report, Livingston et al added three further modifiable risk factors bringing the new total to 12 (Livingston et al, 2020). These include lower education levels, hypertension, hearing impairment, smoking, obesity, depression, physical inactivity, diabetes, low social contact (Livingston et al, 2017), excessive alcohol consumption, traumatic brain injury and air pollution (Livingston et al, 2020).

Frailty has also been recognised as a risk factor for dementia (Ward et al, 2021). Ward et al (2021) examined hospital admission records and death register data to explore if there was a relationship between a recorded frailty index, healthy lifestyle and genetics relating to dementia and found that frailty was strongly associated with dementia and should be considered a modifiable risk factor for dementia and a target for dementia prevention strategies and health promotion. In a study of UK Biobank data, Petermann-Rocha et al (2020) found that individuals with pre-frailty and frailty were at a higher risk of dementia and found in particular, weight loss, low grip strength, tiredness, and slow gait speed were the main components of the frailty phenotype that were associated with dementia.

The risk of becoming frail is doubtless affected by health and lifestyle behaviour throughout a life course, not just in a person's later years, so interventions that effectively build up resilience against falls, immobility and delirium should be considered (Beil et al, 2021; Merchant et al, 2022; Travers et al, 2023). Preventing delirium seems especially important: individuals with delirium have a higher prevalence of frailty (Verloo et al, 2016), and frailty is associated with poorer functional outcomes and increased mortality in delirium (Eeles et al, 2012).

A frail individual is less likely to experience full recovery than someone robust. The concept of 'prehabilitation' may be helpful here. Defined by Romero-Ortuno et al (2016) as 'enhancing the functional capacity of the individual to withstand a stressful event', this approach has often improved postsurgical outcomes. For example, evaluating patients for frailty has enabled older (and therefore potentially frailer) patients to receive successful organ transplants (Romera-Ortuno et al, 2016).

However, a problem remains in the UK healthcare system in that there is a tendency to manage and treat individual diseases and conditions rather than consider multimorbidity (Academy of Medical Sciences, 2018), where the complex and combined effects of several conditions are taken into account. The combination of certain conditions can have a greater impact than the sum total of conditions, resulting in an enhanced effect on functional abilities, quality of life, as well as life expectancy, which create complex health needs, especially seen in older people with dementia and frailty (Mujica-Mota et al, 2015). However, first and foremost the potential for conditions of both dementia and frailty need to be recognised and appropriately assessed.

RECOGNISING AND ASSESSING FRAILTY AND DEMENTIA

Frailty is not always apparent, or often is considered a normal part of the ageing process whereas in fact only 10% of those over 65 years of age develop frailty (British Geriatric Society [BGS], 2014). Thus, it is important that healthcare professionals actively

look out for it and make appropriate assessments. Similarly, dementia is not a normal part of ageing, so will equally require vigilance and assessment (Moore et al, 2023) in order that both conditions can be managed well. Indeed, they can both be overlooked with one diagnostically overshadowing the other (Aldridge and Harrison Dening, 2019).

Many frailty measures have been developed over the past two decades to screen and detect frailty (Buta et al, 2016), with the majority of measures fitting into two main types (Walston and Bandeen-Roche, 2015):

a) Frailty phenotype measures, where motor and activity measurement predominate resulting in an overall score that can range from robust to frail.
b) Frailty index measures, where comorbidities, social factors, psychological conditions, function and cognitive decline measurement are incorporated into an index where the greater number of 'conditions' reflects in a higher frailty score.

The frailty phenotype measures (a) are grounded in a theoretical construct hypothesised to have an underlying biological basis, whereas the frailty index measures (b) describe frailty as a non-specific age-associated vulnerability, reflected in an accumulation of bio-psychosocial elements, including functional deficits (Walston and Bandeen-Roche, 2015).

However, Aguayo et al (2017) argue that many instruments are useful for identifying individuals at high risk for adverse outcomes, but less so at informing clinical practice or the development of clinical interventions to prevent or treat frailty. Short and simple measures which are appropriate to the care setting are valuable in busy clinical practice, so several quick screening tools have been developed and validated (Walston and Bandeen-Roche, 2015), such as the Clinical Frailty Scale (CFS) (Rockwood et al, 2005), largely used in acute care settings, the FRAIL scale (Abellan et al, 2008), and the Edmonton Frailty Scale (EFS), which is an index used to measure alterations related to frailty in a community care setting.

Table 1: Three stages of frailty (adapted from Dementia UK, 2023

Level of frailty	Burden of wound care findings
Mild	A person may appear to be slowing down and need increasing help with everyday tasks, such as meal preparation, heavy housework, managing finances. They may appear unsteady on their feet or unable to walk alone outside and may need a frame to walk with
Moderate	A person will need help with all outside activities and all elements of housekeeping. May have difficulty with managing stairs. May require help with personal care, such as bathing and dressing
Severe	A person is dependent on others for all aspects of care

An abbreviated version of the EFS has been developed (EFS-SF), which embraces the 'timed to get up and go' test (Navarro-Flores et al, 2020).

The general characteristics of frailty are weight loss, poor nutrition, problems in remaining hydrated, fatigue and weakness, and a general slowing down and so reduced physical activity (Dementia UK, 2023), which are not dissimilar to the signs in advanced dementia.

There are considered to be three stages of frailty (Dementia UK, 2023; *Table 1*).

Here, the authors consider an anonymised case, taken from practice, that is not untypical of a situation older people may find themselves in as they move through later life. The case is used to further discuss frailty with superimposed dementia.

CASE STUDY

Joan is an 83-year-old lady who lives alone following the death of her husband four years ago. She has weekly contact with her daughter, who supports her to manage her weekly food shopping and provides support with managing her finances. Joan also has a daughter who lives out of area who visits monthly and supports her with heavy household chores and other shopping, such as for clothing or household items.

Joan is largely independent within her home environment, managing to prepare her food and undertake light cleaning. Joan has mentioned to her daughters that she becomes increasingly tired and often falls asleep during the day. She is a non-smoker and drinks a small amount of alcohol weekly. Joan has a history of multiple comorbidities, including rheumatoid arthritis and breast cancer eight years previously, which was successfully treated following a mastectomy and radiotherapy. Joan has recently had a fall in which she sustained facial injuries and a fracture to her right radius. She reports being anxious about her abilities, which has resulted in increased lack of confidence when mobilising outside, as balance and gait have changed since her fall. The family has also noted and reported some cognitive changes, which although present before her fall are now worsening, including difficulty in word finding, forgetful of recent events, and an overall increased anxiety and feel she would benefit from a memory assessment.

However, since her fall Joan has had no contact with her GP or allied healthcare professionals. During the initial assessment at the emergency department, Joan presented with some evidence of confusion, although this was attributed to acute anxiety following her fall and no follow-up or referral for a memory assessment

Practice point

Case studies can be both educational and informative and offer a simulation of practice examples where clinicians can identify themselves in or recall similar scenarios that they have witnessed or experienced (Seshan et al, 2021). Reviewing case studies offers ideas on how a nurse can improve their clinical practice and so patient outcomes. It can also generate a deeper and multifaceted understanding of complexities encountered in a real-life clinical context.

was made for when she returned home. Joan still considers herself to be independent and refuses support other than that provided by family.

Discussion

As can be seen from this case study, it is important to consider all possible conditions that a person experiences and their impact on each other. Complete wellbeing in an older person is probably an unrealistic aim, but rather seeing health as the ability to adapt and self-manage in the face of social, physical, and emotional challenges (Huber et al, 2011). Joan clearly strives to be an independent person and fortunately sees the acceptance of support as a means to achieving this, which many older people do not. Often a major event, such as the fall in Joan's case, can generate catastrophic feelings of anxiety and of being unable to cope (Schoene et al, 2019). Having this awareness can help general practice nurses (GPNs) to understand how they may be able to support an older person to rebuild their confidence and abilities to maintain independence (Schoene et al, 2019).

Especially important in older people is having an awareness of other conditions which may mimic a presentation of cognitive decline, such as depression and social isolation (Mouta et al, 2023). This is particularly relevant in Joan's case, as she had experienced two major life events in the past four years: the death of her husband and an injurious fall. Similarly, it is important to take into account how social isolation affects Joan and how this impacts on her health and wellbeing and consider local interventions, such as social prescribing, that can mitigate against her social isolation and support her family in continuing to provide care (Percival et al, 2022).

There are several risk factors for dementia (Livingston et al, 2020) that may be mitigated by activities and interventions that are mutually beneficial in frailty also. It has long been the mantra in dementia care that 'what is good for the heart is also good for the head', whereupon positive lifestyles, including exercise, a healthy diet, no smoking, etc, will offer some protection in later years. Similarly, healthy lifestyles confer protection by slowing the rate of age-related health-deficit accumulation, otherwise known as the degree of frailty (Ward et al, 2021). Frailty is a detrimental health state that exerts a broadly based increase in risk for adverse health outcomes, including mortality (Rockwood and Howlett, 2019).

There is much that community and primary care nurses can do in the prevention and management of both dementia and frailty in their older patients, such as promoting a healthy or healthier lifestyle, remaining physically and socially active, having regular hearing tests, etc. This approach can be further enhanced through a person's life course under the NHS 40–74 years health check processes (NHS, 2023) through active health promotion and then later in screening for both the conditions of frailty (Horner, 2022) and dementia (Harrison Dening and Aldridge, 2021. A recent study by Travers et al (2023) suggests that there is a need to support person-centred interventions to combat frailty, such as physical exercises (adapted to their level of frailty), health education, nutritional supplements, medication management and home visits (Travers et al, 2023).

SCREENING FOR FRAILTY AND DEMENTIA

Pre-frailty is the early identification that an individual may develop the onset of clinically identifiable frailty later in life. Recognising this possibility means that plans of care can be implemented to delay the onset (O'Caoimh et al, 2021). Conversely, while there is much research on the biomarkers of dementia and in predicting the possibility of a person developing dementia later in life, there is no specific value in population-based screening (Hawkes, 2013; Martin et al, 2015), but more in nurses and other healthcare professionals being vigilant in recognising the possible early signs of cognitive impairment and then undertaking assessment (Harrison Dening and Aldridge, 2021). The value in this is early access to information, advice and services to support both the person with dementia and their family carers (Harrison Dening and Aldridge, 2021).

Timing of completion of frailty assessment is important and, although often completed during an acute episode of care, it is important that screening is based on level of capability at least two weeks before an acute episode or a crisis (Horner 2022). Thus, routine nursing frailty assessments are of great value in informing the person's baseline functioning. However, if this is not readily available, professionals in acute care should therefore, seeking consent where appropriate, involve someone that knows the person well, such as next of kin or care home staff, in a frailty and/or dementia assessment. It is vital to take time to complete the assessment and consider the degree of frailty (Horner, 2022), which can range from fully fit through nine levels to terminally ill. For those in the early stages of frailty, it is important to consider reversible causes and what interventions may be helpful to optimise their function, such as STOPP/START criteria in management of medications (Turner and Clegg, 2014). Similarly, conditions that mimic dementia, such as metabolic disturbances, depression, should be taken into account so as to rule them out first (Harrison Dening and Aldridge, 2021).

Completing a clinical frailty assessment may be more challenging when assessing someone with cognitive impairment. During assessment, it may be recorded that the person is able to mobilise, communicate and feed themselves. However, people living with dementia, although functionally able, may require additional prompts and

Practice point

STOPP (screening tool of older persons' prescriptions) and START (screening tool to alert to right treatment) are criteria which clinicians can use as a tool to review potentially inappropriate medications in older adults.

support from others in achieving these activities. Similarly, the ability to perform certain tasks may vary on a day-to-day basis due to dementia, which can impact on overall frailty score. Thus, caution is required and such testing may need repeating on other days and at different times to ensure a more accurate reflection of the person's abilities. With this in mind, it is essential when assessing frailty in a person with dementia to understand if the person has the behavioural and psychological symptom of dementia known as apathy, as this will negatively impact on a frailty assessment (Gilmore-Bykovskyi et al, 2019).

CONCLUSION

In clinical practice, frailty and dementia are often considered to be conditions that go 'hand in hand'. However, each requires due attention with respect to their recognition, assessment and management. General practice nurses can play a valuable role in not just their recognition and assessment, but also in delivering and signposting to health promoting activities to better prevent and or manage these conditions. They are also well placed to gain early support for both the person affected and their family carers and supporters (i.e. carers who are not family members).

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Key points

- The population is ageing and so we are seeing an increase in the prevalence and incidence of age-related conditions, such as frailty and dementia.
- Diagnostic labels can be convenient shorthand, but what frailty and dementia both have in common is that they rarely 'travel alone'.
- A problem remains in the UK healthcare system in that there is a tendency to manage and treat individual diseases and conditions rather than consider multimorbidity.

Revalidation Alert

Having read this article, reflect on:

- Your knowledge of frailty and how you assess a person for it
- Risk factors for frailty and dementia
- The importance of considering multimorbidity.

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

Can coaching be the answer to developing nurse leaders?

Nurses and nursing leaders continue to be overwhelmed by increasing challenges as the call to demonstrate higher levels of resilience gains momentum. And yet nurses continue to be faced with unparalleled levels of adversity, leading to a loss of hope, with many choosing to leave the profession rather than continue to be exposed to unyielding levels of stress that have the potential to threaten the survival of the profession itself. With this in mind, this paper focuses on the importance of nurses working collaboratively through the process of coaching, a construct gaining momentum as the profession seeks to expand and facilitate new ways of working in order to develop both current and future nursing leaders and, in so doing, not only strengthen the voice of nursing, but also improve the way in which nurses practice.

KEY WORDS:

- Coaching
- Leadership
- Empowerment
- Praxis
- Resilience

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Photograph: web_monster/Shutterstock

To practice and retain registration, nurses who work within the UK are legally required to be registered with the Nursing and Midwifery Council (NMC). They are also required to abide by *The Code* (NMC, 2018a); professional standards that nurses must uphold. Defined explicitly within *The Code* (NMC, 2018a), all nurses are required to support nurses at both pre- and post-registration level to develop their skills, abilities and knowledge — aspects fundamental to the development of current and future nurses.

Within nursing, one of the key mechanisms for facilitating learning is mentorship (Gopee, 2018). Having become an unfaltering support within nurse education (at least within the UK) since the late 1970s, Vance (2002) argues that mentorship is a professional obligation. According to Hayden (2021), this relies on a strongly embedded hierarchy through which the more experienced colleague supports the less experienced.

However, while Thompson (2016) has argued for more mentoring to prepare a new generation of nursing leaders, in the author's opinion, it is coaching rather than mentorship that appears to be evolving as a new and innovative approach to professional nursing development.

Indeed, this is now evident with the role of mentor having been replaced by the roles of practice supervisor, practice assessor and academic assessor (Gopee, 2023), as required by *Future nurse: Standards of proficiency for registered nurses* (NMC, 2018b) — i.e. roles more akin to that of the coach.

COACHING

Coaching is defined as a process that supports accomplished performance by utilising a solution-focused approach towards action (Cox et al, 2018). It is designed to engage the coachee (the person being coached) in a thought-provoking creative process, the objective of which is to enhance leadership performance through the construction and execution of specific and measurable behavioural goals (Cox et al, 2018). Coaching differs from mentoring in that it typically focuses on the development of professional skills for an individual's current role and performance, rather than long-term career development (Passmore and Crabbe, 2020).

Through the process of active dialogue, personal and professional interactions and positive engagement (Barr and Tsai, 2021), coaching can:

- Support real-time problem-solving
- Promote education competence
- Nurture the sharing of life lessons (Decampli and Nash, 2015).

This, in turn, can lead to professional growth (Gregory and Levy, 2011) and the fostering of interprofessional teamwork (Sherman, 2019).

Furthermore, Narayanasamy and Penney (2014) advocate that coaching has the potential to tap into an individual's innate motivation for learning, leading to new personal insights. Moreover, with its emphasis on encouraging both self-awareness and self-improvement, coaching has been found to encourage focus and reflection and unlock potential (Whitmore, 2017). This, in turn, has the capacity to improve individual performance, turn reflection into action, and increase positive relationships (Passmore and Crabbe, 2020). Indeed, coaching consists of a dialogue through which the coach supports the coachee to gain insight and take action towards specific and personally defined outcomes (Jones and Gorell, 2018).

Furthermore, coaching can:

- Support the development of effective leadership skills (Bradley and Moore, 2019)
- Support increased confidence (Jones, 2020)
- Encourage self-awareness (Whitmore, 2017)
- Augment the value of a positive work-life balance (Bradley and Moore 2019)
- Build on existing abilities
- Promote accountability and facilitate goal achievement (Arnold, 2016).

All skills required of an effective nurse leader.

Coaching can be depicted as coaching in the moment, characterised as being everyday informal coaching opportunities (Pilger and Boardman, 2019), and coaching over time (Landreville et al, 2019). Essentially, two very different concepts, with coaching in the moment encouraging performance improvement, and coaching over time, inspiring collaboration and new learning perspectives, reflection on performance, openness to feedback and increased personal motivation (Atkinson et al, 2022).

Disappointingly, however, while it is evident that coaching is gaining momentum and increasingly emphasised as a feature of high-quality professional development (Desimone and Pak, 2017), it remains embryonic compared to the many other approaches that have gained a strong foothold, such as mentorship, which has its origins in the early part of the twentieth century (Vance, 2002), and clinical supervision (Butterworth, 2022).

CLINICAL SUPERVISION

Having gained momentum in the 1990s and now an integral part of nursing practice, clinical supervision is considered a formal process of professional support, reflection and learning that contributes to individual development (Butterworth, 2022). This is supported by Richardson et al (2023), who purport that clinical supervision is composed of a formal professional relationship, the aim of which is to facilitate reflective practice, develop professional skills and critique ethical issues. And, while there may be some similarities to coaching, the nature of the relationship is different, especially in relation to nursing leadership (Richardson et al, 2023).

With these approaches to nurse development continuing to be firmly embedded within everyday nursing practice, if coaching is to become the more dominant approach to professional development, it is essential that nurses challenge their consistent use. Such a change however, necessitates a paradigmatic shift, requiring nurses to take action and facilitate the creation of a dynamic coaching culture (Richardson et al, 2023), rather than continuing to be entrenched in outdated modes of supervision and support. Something, which perhaps, is easier said than done.

CREATING A COACHING CULTURE

To understand what a coaching culture is, it is pertinent to understand the meaning of the term culture; although this is not without its challenges. For example, Groysberg et al (2018) defines culture as:

> *The tacit social order of an organisation.*

While Coyle (2018) argues that culture is:

> *A set of living relationships, working towards a shared goal. It's not something you are, it's something you do.*

Coaching culture is a term used to define a principal style of management, which is embedded in a simultaneous commitment to foster employee development and promote collaboration (Clutterbuck and Megginson, 2005). Supported by Jones and Gorell (2018), a coaching culture is one in which coaching occurs at every level and where employees are empowered to act, enabling the organisation to adapt and flourish through the talents of its employees, a key element of which is the ability of leaders to empower and lead.

Those who seek to create a coaching culture look for opportunities to empower others to take responsibility for their own learning, essentially becoming 'ready, willing and able' to take the necessary action that will facilitate their professional growth (Jones and Gorell, 2018).

Furthermore, nursing leaders who practice within a coaching framework nurture staff engagement; they encourage open discussion and build confidence in their capacity to lead (Sherman, 2019). They instil a sense of collaboration, act with openness and transparency, encourage and motivate, give recognition, foster innovation, express gratitude and are fair in their approach (Sherman, 2019).

Fundamentally, creating a coaching culture empowers people to make their own decisions and take responsibility for their own actions through the use of a supportive coaching style (Jones and Gorell, 2018). The process leads to curiosity, which in turn promotes knowledge and essentially wisdom, as individuals learn to apply such knowledge to their own professional practice (Jones and Gorell, 2018).

Furthermore, through a process known as praxis (Chinn et al, 2021), nurses, especially nursing leaders, are able to critically reflect upon their behaviours in any given situation and take action against the challenges that persist, including:

- Staff shortages and the inability to retain nurses (Buchan et al, 2022)

- Limited resources (King's Fund, 2021)
- Lack of long-term investment by successive governments (Castro-Ayala et al, 2022)
- Lack of kindness and empathy (Evans et al, 2019).

In addition, they can promote the betterment of patients, colleagues and ultimately communities and society as a whole.

NURSING LEADERSHIP

Leadership is considered both multifaceted and complex in nature (Benmira and Agboola, 2021). Strong and effective leaders have the ability to influence (Stoner, n.d.), empower and inspire others, increase engagement and ultimately productivity, which can lead to more content employees (Huston, 2024).

Involving myriad of both strategic and interpersonal responsibilities, leaders are required to cultivate their imagination and demonstrate vision, inspire change, set organisational direction, demonstrate confidence despite increasingly high levels of uncertainty, and take educated risks, while embracing significant levels of accountability (Kerr, 2015).

It is evident within the literature that nursing as a profession is constantly changing, requiring strong and dynamic leaders (Ofei et al, 2022) able to reflect on performance and determine what is and what is not working (Robinson-Walker, 2021). Such leaders are often required to operate within cultures that are toxic, the characteristics and impact of which are described by Hetrick (2023). Furthermore, they are frequently faced with challenges that surpass everyday experiences, including the need to demonstrate moral courage (Numminen et al, 2019), and encourage a discourse regarding ethically competent and morally courageous behaviour (Pajakoski, et al, 2021) — and all the while keeping abreast of new and emerging concepts, such as moral injury.

Defined as an enduring, emotional, psychological, social, and spiritual effect, which occurs as a result of actions undertaken contrary to one's moral values (Litz et al, 2009), moral injury has gained increased understanding in recent years as a result of the devastating impact of the Covid-19 crisis, especially within healthcare (Shale, 2020). The impact of moral distress is witnessed in three key areas:

- The health and wellbeing of healthcare professionals
- The provision of quality care
- The inability to deliver the expectations required of the healthcare organisation

(Atli Özbas and Kovanci, 2022).

With all three areas coming under intense pressure at the height of the pandemic, many nurses experienced challenges to their internal moral compass, as they felt pressurised to act in a way they considered unethical, but powerless to act differently (Cramer et al, 2022). For example, clinicians, paramedics and other care staff were unable to care adequately for patients due to lack of resources (Williamson et al, 2020). Furthermore, according to the report 'As if Expendable' by Amnesty International (2020), many care homes across the country had a blanket Do Not Attempt Resuscitation (DNAR) imposed upon residents and restricted access to hospital.

It is evident that leadership is one of the most complex and multidimensional concepts known, and continues to take on an even greater level of importance as we progress towards an ever-increasing, globalised society (Benmira and Agboola, 2021). With effective nurse leadership being central to the delivery of quality nursing care and the overall success of healthcare organisations (Labrague et al, 2021), and with coaching having been widely acclaimed as a contributory intervention for nurse leadership development (Cable and Graham, 2018), it is important that nurses embrace coaching as an opportunity to work collaboratively to develop the skills and resilience necessary to take on these unyielding challenges. Preparing nurses for leadership roles and increasing levels of responsibility is crucial (Wakefield, 2018).

RESILIENCE IN NURSING

According to Wei and Taorminal (2014), personal resilience is:

> *A multifaceted construct that includes a person's determination and ability to endure, to be adaptable and to recover from adversity.*

While there is increasing emphasis on nurses developing resilience within the nursing literature, there is no universally accepted definition of nurse resilience (Aburn et al, 2016). Resilience is associated with having the ability to balance competing demands (Pines et al, 2014), to bounce back from significant challenges (Sherman, 2019), and when faced with life disruption, adopt a flexible approach to thoughts, feelings and behaviours, and in so doing emerge from adversity wiser, more robust and adept (Pemberton, 2015).

Although resilience has the potential to impact on the positive experiences of nurses and patients alike, it requires the ability (of nurses) to demonstrate adaptability (Henshall et al, 2020a) and high levels of emotional intelligence and regulation (Middleton et al, 2022) for this to happen.

Furthermore, while internationally a variety of interventions, including educational programmes, have been developed to improve the resilience of nurses, resilience in nursing must be recognised as a dynamic, fluid process that requires continuous nurturing and commitment, in the face of changing professional and personal requirements (Henshall et al, 2020a, b). It is important therefore, that such interventions are not considered a panacea for the all-encompassing problems faced by healthcare services today and the resultant challenges (Henshall et al, 2020a, b). Essentially, nurses are working under immense pressure, which has the potential to impact on their ability to nurse. This is supported by Taylor (2019), who argues that resilience training alone can be perceived as a negative as it implies that the inability to demonstrate resilience is down to the individual's inability to cope, rather than as a direct result of the conditions that persist.

Moreover, it is important to reflect on the 'dark side' of resilience (Mahdiani, 2021) and consider the question proposed by Atkinson et al (2009) — 'Is resilience always a positive personality attribute?' This is especially so, as the need to meet service demands while working in highly pressurised, on occasion suboptimal situations, can result in registered nurses encountering episodes of stress and burnout (Henshall et al, 2020a).

To put this into perspective, in September 2022, there were over 46,000 nurse vacancies in England alone (Ford, 2022). Before the pandemic, the global shortage stood at 5.9 million nurses, and it is estimated that by 2030 this will have increased to 13 million (Buchan et al, 2022).

Despite these overwhelming challenges, the importance of developing strategies that support resilience should be explored — including coaching. Given the value of coaching within professional nursing practice, the value of integrating coaching strategies to develop resilience should not be underestimated. However, in the author's opinion, introducing coaching into the workplace could be considered a formidable challenge, made all the more difficult by the command and control management approach still deeply embedded within behaviours of senior leaders in the NHS (Kline, 2019). Such an approach calls for a change in leadership styles that encourages innovation, shared decision-making and professional autonomy.

CONCLUSION

Unquestionably, as much of the research shows, coaching could be considered a useful approach to build resilience and help support those transitioning to nursing leadership.

Providing coaching opportunities that support the development of resilient nurses and strong nursing leaders may have its place in cultivating the current and future nursing workforce. However, this is only one way in which the ability of nurse leaders to lead can be enhanced.

Nursing praxis, as with nursing resilience, has attracted increasing attention in the literature in recent years. The emphasis being on nurses to understand the value of critical reflection and action in bringing about positive change (skills which are also considered important aspects of coaching) at a social, political and global level, in order to address the complex issue of inequalities in health — a phenomenon which has gained significant momentum in recent years. Such actions seek to improve healthcare service delivery and ultimately patient care at a time when pressure to be 'all to everyone' is at its highest. **GPN**

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Stop feeling blue about asthma: reconsidering the place of reliever inhalers

Asthma is an inflammatory condition which leads to narrowed and hyperresponsive airways. In recent times, the standard approach to managing asthma has been to use an inhaled corticosteroid (ICS, the preventer) to dampen down the inflammation and a short-acting bronchodilator (the reliever) to open up the airways if the person with asthma needed symptom relief. If the preventer inhaler is doing its job, the reliever should not be needed more than three times per week. The British Thoracic Society/Scottish Intercollegiate Guidelines Network guidelines currently reflect this approach (BTS/SIGN, 2019), but later this year these guidelines will be updated based on a collaboration with the National Institute for Health and Care Excellence (NICE). NICE previously published its own asthma guidelines, which were controversial in terms of their recommendations, with a focus on using preventer therapy if a reliever was needed three times a week or more, rather than prioritising the use of anti-inflammatory treatment for an inflammatory condition. It will be interesting to see what the joint recommendations will be. In the meantime, many clinicians with an interest in asthma management are looking to the Global Initiative for Asthma recommendations for a fresh approach to asthma management (GINA, 2023).

CASE STUDIES

Gary is 24 years old and was diagnosed with asthma aged 14, using a combination of history, spirometry and fractional exhaled nitric oxide (FeNO) testing. He has never had good control of his asthma, although he cheerfully admits that he often forgets to take his preventer inhaler. Nonetheless, he finds his blue inhaler very useful if his symptoms flare up and he also uses it when he goes for a run. He attends for an asthma review.

Attending the same clinic is Ellie, aged 13, who gets asthma symptoms with her hay fever. Other than during the hay fever season, or when she has a cold, she is symptom-free. Careful history-taking reveals this to be the case. She is adamant that she does not want to have to take daily treatment, but a clinician from a previous surgery said that asthma management was 'all or nothing' and she must take a daily preventer to manage her symptoms. She refused to attend her asthma reviews after this but has just moved to the area and has reluctantly come along with dad.

Beverley Bostock, advanced nurse practitioner in long-term conditions, Mann Cottage Surgery; asthma lead for the Association of Respiratory Nurses

TREATMENT CHALLENGES

In cases like Gary and Ellie, implementing the first step of the British Thoracic Society/Scottish Intercollegiate Guidelines Network guidelines (BTS/SIGN, 2019) would involve getting both to take daily preventers and use a reliever inhaler as needed. The conversation might focus on the fact that if they do this, the need for the blue inhaler would be minimised, because good control would be achieved by addressing the underlying inflammation that was driving the symptoms. However, on leaving the consultation, and in spite of assuring the nurse that they will indeed start using the inhaled corticosteroid as prescribed, both patients decide to continue using their short-acting beta2 agonist (SABA) as needed, because, as Gary says, 'It works and I can feel it working' and as Ellie says, 'I'm not taking steroids every day when I only get symptoms occasionally'.

WHAT WOULD GINA SAY?

The Global Initiative for Asthma (GINA) merges the science of asthma management with the art of understanding human behaviour. If clinicians recognise this, it should be possible to combine these elements when choosing the most appropriate management strategy. GINA recommends using an 'as required' inhaled corticosteroid (ICS)/formoterol combination inhaler to offer symptom relief while concurrently treating the underlying inflammation. These guidelines state that as-needed low dose ICS/formoterol should be the preferred reliever for asthma symptoms in adults and adolescents (from age 12 upwards), across the range of asthma severity, from GINA step 1 to step 5. They also underline the fact that SABA reliever alone should not be used in asthma.

Some people, like Gary and Ellie, are not comfortable following fixed medication regimens (Barnes and Ulrik, 2015). However, their use of a SABA to 'manage' their asthma is associated with an increased risk of asthma morbidity and mortality (Royal College of Physicians [RCP] 2014; Molina et al, 2023). For several years now, GINA has recommended the 'anti-inflammatory reliever' (AIR) approach with a combination inhaler, which contains both an ICS and the fast-onset, long-acting beta2 agonist (LABA) formoterol.

This approach gives symptom relief (the patient's desired outcome) with the anti-inflammatory action of the ICS (the clinically desired outcome). With respect to the latter, research has confirmed that markers of inflammation, such as sputum eosinophils, can be reduced as soon as six hours after a single dose of inhaled budesonide (Gibson et al, 2001). This knowledge, along with findings from other studies

including Novel START, SYGMA 1 and SYGMA 2, has enabled the licensing of the first ICS/formoterol combination inhaler (Symbicort 200/6mcg Turbohaler) to be used as an 'as required' anti-inflammatory reliever (O'Byrne et al, 2018; Beasley et al, 2019; Reddel et al, 2021).

This provides an excellent opportunity to simplify asthma management for clinicians and patients, with a built-in self-management, step-up, step-down approach using one inhaler for treatment and symptom relief. It also requires just one inhaler type and technique based on a dry powder inhaler (DPI), which may be better for the environment too.

INITIATING THE AIR APPROACH

After explaining the AIR approach to Gary and Ellie, an assessment of inhaler technique will be needed. Initially, the correct technique should be demonstrated by the clinician, then each patient should be observed performing the same technique for preparation and inhalation of the medication. In practice, the author uses her own 'PEACH' approach to reminding people of the key elements of good technique:

- Prepare the device (for the Turbohaler, remove cap, hold upright, twist base backwards and forwards to load)
- Exhale away from the device
- Activate the device (for the Turbohaler, breathe in, hard and fast)
- Correct inspiratory flow rate (30–60L/min measured with the InCheck device)
- Hold the breath (count of 10).

For AIR, the advice is to take one inhalation as needed, up to six at any one time and no more than 12 in a day. For anyone using more than eight inhalations daily, the recommendation is that they should seek urgent advice (i.e. same day). AIR personalised asthma action plans are being developed by Asthma and Lung UK, but the New Zealand version can be found at: https://takeyourbreathback.co.nz/assets/Uploads/AIR-Asthma-Action-Plan-v05-copy.pdf

MOVING FROM AIR TO MART

Moving to a maintenance and reliever therapy (MART) approach will happen naturally. Ellie and Gary will use more ICS/formoterol when they need it and less when they do not, so they will step their treatment up and down to fit their own needs. However, if they find that they are needing to use their 'as needed' doses regularly, they should consider moving to MART. Whereas AIR involves taking one dose of ICS/formoterol as needed, MART involves taking regular doses of their ICS/formoterol combination inhaler and then taking extra doses as needed. In the New Zealand guidelines:

- Step one is to use prn ICS/formoterol
- Step two means moving to MART (one dose twice daily or two once daily plus extras as needed)
- Step three is two doses twice daily with extras as needed.

"Both AIR and MART reduce the risk of asthma exacerbations by treating the cause (increasing inflammation) with anti-inflammatory medication, at the same time as relieving symptoms.

People using Symbicort MART can use up to a maximum of 12 doses a day in total. Other MART therapies are available including Duoresp, Fobumix and Fostair, but these are not licensed for AIR at the time of writing. The maximum number of doses to be taken in one day using Fostair MART is eight, and it is only licensed from age 18 and upwards. Fobumix is also licensed for MART from age 18, and patients should not exceed a total daily dose of 12 inhalations. Duoresp and Symbicort are licensed to use as MART from the age of 12.

ADDRESSING CONCERNS

Evidence has confirmed that 90% of participants preferred the 'as needed' approach to taking medication versus the more common approach of regular, daily treatment (Baggott et al, 2020). However, patients and clinicians may struggle with removing the blue reliever from asthma management, despite GINA's recommendations. It is important to remember that the National Review of Asthma Deaths (NRAD) demonstrated that there was evidence of overuse of reliever medications along with significant under-prescribing of ICS therapy in people who had a fatal asthma attack (RCP, 2014).

Patients deserve a confident explanation about how AIR and MART work and why these approaches are being recommended. They should be reassured that formoterol works as quickly as a SABA for symptom relief but lasts much longer, plus they will get a dose of anti-inflammatory medication which will address the root cause of their asthma symptoms (Cazzola et al, 2002; Kearns et al, 2022).

They should also understand that SABAs mask symptoms without treating them. Asthma and Lung UK are working on their AIR resources but have helpful links to information about MART: www.asthmaandlung.org.uk/symptoms-tests-treatments/treatments/mart, including MART action plans in a range of languages: https://shop.asthmaandlung.org.uk/collections/mart-asthma-action-plan/

MANAGING EXACERBATIONS

Both AIR and MART reduce the risk of asthma exacerbations by treating the cause (increasing inflammation) with anti-inflammatory medication, at the same time as relieving symptoms (Patel et al, 2013; Beasley et al, 2019). In the situation where an exacerbation has occurred, the advice should be that patients should continue to take their ICS/formoterol and seek urgent medical help but should not go back to using salbutamol. This advice is included in the New Zealand guidelines. In studies, 98%

of people were able to generate adequate inspiratory flow to activate a Turbohaler during an asthma attack (Mohd Rahzi et al, 2023). A Cochrane review of the literature suggested that hospital admissions for asthma exacerbations and prescriptions for oral corticosteroids have decreased (Crossingham et al, 2021).

SUMMARY

The anti-inflammatory reliever (AIR) therapy approach to asthma management using Symbicort Turbohaler was licensed in the United Kingdom in 2023. The GINA guidance has endorsed this approach for several years, as it reflects both patient and clinician goals. Using AIR and stepping up to MART and back down to AIR as needed combines a scientific and behavioural approach to asthma treatment. Clinicians need to understand the rationale for both AIR and MART in order to recommend these approaches with confidence right from diagnosis. Following the introduction of asthma guidelines in New Zealand based on GINA recommendations which support the use of AIR and MART, prescribing of SABAs has reduced, while the use of ICS/formoterol has increased (Hatter et al, 2023). It's time the United Kingdom followed suit. **GPN**

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Resource

Primary Care Respiratory Society (2023) Recommendations on the use of GINA guidelines and starting treatment for asthma with an ICS/formoterol combination are available online: www.pcrs-uk.org/sites/default/files/resource/2023-May-PCRU-Focus-Asthma-GINA-Approach.pdf

Key points

- The standard approach to managing asthma has been to use an inhaled corticosteroid to dampen down the inflammation and a short-acting bronchodilator to open up the airways if the person with asthma needed symptom relief.
- The British Thoracic Society/Scottish Intercollegiate Guidelines Network guidelines currently reflect this approach (2019), but later this year these guidelines will be updated based on a collaboration with NICE.
- GINA recommends using an 'as required' inhaled corticosteroid (ICS)/formoterol combination inhaler to offer symptom relief while concurrently treating the underlying inflammation.
- This approach gives symptom relief (the patient's desired outcome) with the anti-inflammatory action of the ICS (the clinically desired outcome).

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[1] IQVIA UK Information & Analytics Data Services, PBS MS for 2023. [2] Data on File. Softness measurement with Emtec (tissue softness analyser) TSA, nr TM000156_EN (2022). [3] Barrett, S *et al.* (2018) A 50 patient observational clinical study of superabsorbent dressing: effective exudate management with Zetuvit® Plus evaluated by clinicians and patients. Journal of Wound Care vol. 27 no. 2 February 2018. * than compared to popular dressings, according to TSA test.