JOURNAL OF GENERAL PRACTICE NURSING

GPN

Promoting practice to improve patient health and quality of life

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1. Guest et al (2020) Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013, BMJ V10.11
2. Guest J (2021) Burden of wounds to the NHS: what has changed since 2012/13? Guest editorial, Wounds UK, Vol 17, No 1
3. Staffing shortfall of almost 250,000 by 2030 is major risk to NHS long-term plan, experts warn | The King's Fund (kingsfund.org.uk)

* Hallas-Hoyes et al. (2021). An advanced self-care delivery model for leg ulcer management: a service evaluation. JWC

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Let's not lose sight of our expertise and experience

I found the 'Practice matters' article about GPNs and the additional roles reimbursement scheme interesting on several levels. First, it reminds me how well placed we are as GPNs to deliver holistic personalised care across the whole population. Patients regularly feedback that they like seeing a clinician who can listen to and help with a wide range of health issues.

The second thing I reflected upon was how useful our experience, especially in long-term conditions and women's health, is for support and education across our multiprofessional teams. It's something we can lead the way on for better education of colleagues and suggesting and implementing quality improvement initiatives.

The third area I thought about was that while staff shortages and changing population needs do make the creation of new roles useful, it is important that we articulate our value within these large teams and ensure that this is recognised. In my clinical setting, there is plenty of work for us all and the greater diversity and experience that additional roles can offer is a benefit, but it would be crazy if this somehow overran or diminished the importance of the GPN role in delivering high standards of care. We need extra solutions, but by no means replacements. Recruitment is not getting easier, and a wider range of solutions is in my view positive.

Training and supporting new team members is time-consuming, especially in the early stages. If someone sits in on your clinic you need more time to explain, demonstrate and teach and when they begin consulting on their own, they need an 'open door' policy, so that they can learn safely on the job. This takes time, especially when trying to make space within your own clinic. Some blocked slots in clinics will help facilitate this supervision and could also enable us to be proactive at checking in with colleagues. We need to find ways of capturing and quantifying our support for colleagues and get the space to do this effectively.

What's helped with this? Well, I have found it easier to vocalise what I do since gaining a 'twin' work colleague. With similar backgrounds we understand each other, and I can see more easily the true value of what we offer. I'm no longer trying to articulate what I offer, but what the role offers.

There are lots of great articles in the journal; part two of the 'Abnormal menstrual bleeding patterns' helped me develop a clear feel for differential diagnosis in this area and clarity around red flags and potential causes. The 'Diabetes digest' piece brought me back to the crucial role we play in primary care and our ability to manage complex long-term conditions and multimorbidity. I also found it helpful to read about heart failure, another area where we can have a central role in people's care.

Here at GPN HQ, we would like to wish all our readers a very happy and relaxing Christmas and New Year. And, if you have any ideas for topics to cover in the journal, please get in touch so that we can include in 2024.

Jaqui Walker, editor-in-chief

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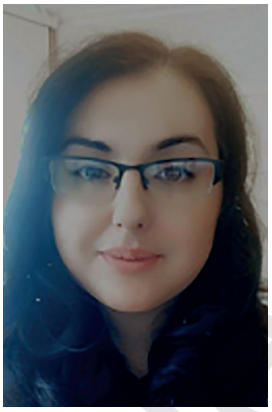
My passion for education has given me such an amazing general practice nursing career. To be invited to become a member of the editorial team for the *Journal of General Practice Nursing* provides the opportunity to contribute to a journal with high standards and vision. This comes at a particularly 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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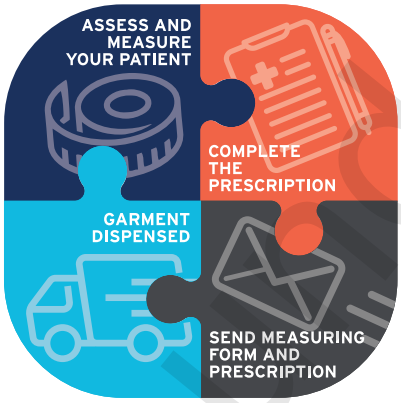

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In each issue we investigate a topic affecting you and your practice. Here, Bethan Cornick, policy and communications intern, Queen's Nursing Institute (QNI), looks at...

What the additional roles reimbursement scheme means for GPNs

The Queen's Nursing Institute (QNI) has significant concerns about the additional roles reimbursement scheme (ARRS), particularly the impact on general practice nurses (GPNs).

With NHS England's ARRS now funding 17 multidisciplinary team roles in primary care, the QNI is disappointed to see the continued exclusion of GPNs from the scheme. Many practices are now employing large numbers of staff through the ARRS, with GPNs being required to support new starters, despite being excluded from recruitment into the scheme.

It is well documented that many GPNs, alongside GPs, are spending a substantial part of their clinical time developing and delivering induction programmes, supervision, and training schemes for new ARRS starters. But, GPNs are receiving no additional benefit or recognition for this, and there are minimal resources to deliver these necessary induction programmes. Indeed, the additional work that GPNs are currently undertaking to help ARRS staff should be recognised.

GPNs are working longer hours to continue to provide clinical care alongside the additional responsibilities brought about by the ARRS new starters. NHS England could address this if they allocate resources to support the comprehensive induction and supervision of new members of the general practice team recruited through the ARRS.

While the ARRS has been introduced to support general practice, I think this article demonstrates the concerns that are being raised by GPNs at present — as well as a feeling of being forgotten or overlooked. I am an advanced practitioner myself, but without the support and lead from our GPN team my role would not be able to take place — indeed, the development of clear career pathways are needed to support GPN progression. I agree that the GPN (or someone with GPN experience) is best placed to lead a nursing team to support the work provided by the nursing teams. General practice is an ever-evolving arena, and although change is needed to find new ways to support patient care, we need to work on our existing foundations to ensure that GPNs feel valued and motivated. It is encouraging to see that the QNI are wanting to work with providers, as if this issue is overlooked, I feel it could derail the already exhausted GPN workforce. It will be interesting to see the results of the survey, but also to use these thoughts and feelings to provide a support structure for our GPNs to allow future development and consolidation of the amazing work they already undertake.

Callum Metcalf-O'Shea
Advanced nurse practitioner (diabetes specialist), Thorpewood Medical Group

Support is particularly required where those who join general practices through the ARRS have no prior experience in primary care. There is a need to develop robust clinical guidance to accommodate the practice and supervision of those joining general practice with no previous knowledge of the sector, which is further burdening overstretched GPNs.

Moreover, advanced nurse practitioners (ANPs), who are now included in the scheme, are often routinely named as the lead nurse over GPNs when they join via the ARRS route, even when they have not previously worked in general practice. Given the extensive experience GPNs often have, it is disappointing to see them overlooked in this way.

There is also an emerging risk of deskilling expert GPNs in favour of the new roles introduced through the ARRS, where clinical practice becomes divided into tasks and the continuity of care currently provided by GPNs is diminished. A unique part of the GPN role is the ability to deliver holistic, personalised care for the whole population; many other roles are providing care that is chiefly task orientated and episodic rather than holistic, risking duplication, omissions, or unnecessary interventions.

I work in a large primary care network (PCN) where we have a physiotherapist, physician associate, several clinical pharmacists, several paramedics, a care coordinator and several social navigators. I am also aware of how some of these roles are being utilised across our training hub catchment area.

The introduction of the additional roles reimbursement scheme (ARRS) into general practice has been unsettling for many general practice nurses (GPNs). This is mainly because it was introduced with little, or no consultation with frontline general practice staff, notably GPNs. Nurses felt excluded and undervalued without understanding why they were excluded from ARRS. As GPNs are already part of the existing practice team, funding for them is already included in the General Practice Global sum. Advanced nurse practitioners (ANPs) were only recently added to the list of ARRS roles. Poor understanding of the different roles and how they might be properly introduced and integrated has led to misuse and misunderstanding. Nurses, as well as GPs, were expected to assist with induction programmes or provide support for roles unfamiliar with general practice.

We need more staff in general practice, but careful consideration needs to be given to how these new roles fit in and add value. If they are not carefully introduced, it may cause friction and extra work for GPNs, who already feel undervalued. They may feel that their unique holistic personalised care role is threatened by these new roles simply taking on tasks, rather than managing the whole patient. For example, an asthma review by an asthma trained, really experienced GPN is more likely to benefit the patient than a limited medication review by a generic pharmacist. Equally, a pill check by a family planning trained GPN is likely to be more holistic, picking up on some of the more subtle aspects of general or contraceptive health. The recent inclusion of paramedics being able to carry out cervical screening is an example of treating this nursing activity as a task, rather than appreciating all the wider aspects surrounding the activity, such as female genital mutilation (FGM), domestic abuse or vaginal symptoms. Another consideration is, who would train them and sign them off as competent — GPNs? All these unintended consequences need to be thought through so that work is not duplicated or done to a lesser standard.

Nurses do need to accept change and be willing to consider new approaches to care, but we must not lose sight of the really import role of a skilled GPN, who can manage the whole patient better than someone just carrying out a task. GPNs need to take time to consider how they can demonstrate the value of person-centred holistic care carried out by experienced nurses familiar with general practice. We need more evidence to show the value GPNs bring to nursing activities, when assessed against task-measured care.

The strong financial incentive to employ through the ARRS has often led to recruitment without enough thought about the impact these roles may have on the existing general practice team. There also needs to be consideration for those employed through the ARRS to ensure that they can have a satisfying career in general practice and do not just leave in frustration. Each ARRS role should be understood in the context of the whole team, with careful thought as to what each role can bring to improve patient care. Adjusting to general practice is not easy for most of the roles as the hospital or emergency care environment is so different.

There are five things which can make the difference when introducing ARRS roles, namely:

1. *Effective communication about the roles within the practice team.*
2. *A clear description of the role and responsibilities of each ARRS role.*
3. *A really good induction which may take many months for those new to primary care.*
4. *Regular, effective, ongoing supervision.*
5. *A clear plan for training and career development.*

I believe there is great potential for utilising many of the ARRS roles, but each role needs careful consideration as to how it will help with sharing the workload and improving access. Individuals need to feel valued and supported and see the opportunity for a long-term career in general practice as part of the team.

It will be useful to reflect on how many of the ARRS appointees are still in post in three or five years and what impact they have had on greater efficiency in general practice.

Jenny Aston
Advanced nurse practitioner; Royal College of General Practitioners (RCGP) AHP/nurse representative

As a working general practitioner for the last 30 years, I am well aware of the skills, expertise and importance of general practice nursing colleagues who I have had the honour of working with throughout this time. I am aware that the majority of my colleagues would highlight in strong terms the value that GPNs have in primary care — and their expertise in many parts of provision of primary health care. I have seen the team roles expand over time (into chronic disease management, contraceptive care — and, indeed, many now in management of acute illness too, to name a few). I am fully aware of the need for training to manage people well clinically and I understand the frustrations of not being considered part of the ARRS. The role that many nurse colleagues (and my GP colleagues) are contributing to help to develop the ARRS workforce is often under-recognised. My impression from talking to colleagues across boundaries around the country is that many of the assumptions centrally have been that these colleagues would make life easier for clinicians in primary care. However, I am aware that in many situations the workload remains significantly higher, as these new clinicians learn to communicate with patients, examine appropriately, and, perhaps most importantly, manage risk and communicate this well. There are significant workforce challenges which we are all feeling, linked to many of our colleagues retiring (often earlier), and lack of funding and incentives to attract more into the wonderful world of holistic care that we provide in primary care. I know the majority of GP clinicians in the UK really appreciate the partnership we have with our nurse colleagues — and I would hope that we will be supporting your drive to get more recognition and resource to provide the brilliant service (and training of our ARRS colleagues) that you are struggling to provide at the moment. Let's hope that all the training we are providing will result in a reduction in workload, although at the current time I am not sure many of us are feeling this.

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

I agree that it is important that GPNs are not forgotten or diminished with the influx of new roles into practices. GPNs are so important and play a crucial role in primary care; they do something that many other nurses don't; they care for people no matter the age, from cradle to grave.

As a professional nurse advocate (PNA) in primary care, I believe that it is extremely important for GPNs to have their own clinical supervision — something which hasn't always been present in primary care. This will contribute to GPNs feeling valued and supported in their role. Setting some boundaries so there is time just for nurses which is protected will be invaluable. However, I understand that this may be difficult in some clinical settings where, for example, there may be an isolated paramedic and leaving them out wouldn't feel appropriate.

PNAs can help nursing teams by providing a restorative clinical space (one-to-one or as a team), but we can also support the team to hold clinical supervision. In addition, we are there to provide a safe space for nurses if they are struggling; personally or professionally. The PNA role has proven benefits — see the research paper called 'National Evaluation of the Professional Nurse Advocate Programme in England: SUSTAIN – Supervision, Support, Advocacy for Improvement in Nursing, Mixed Methods study' by Liz Lees-Deustch et al (2023).

Ensuring the PNA role is firmly implemented into primary care is just one way of supporting GPNs in their role in these evolving circumstances, and one which will back that 'further support is needed now and in the future to retain, recognise and value the central role of GPNs in primary care', as written by Bethan Cornick in this article.

I look forward to seeing the results of the QNI survey.

Georgina Callard
Lead professional nurse advocate for primary care, Training Hub, Northamptonshire; Queen's Nurse

It is of little doubt that a multidisciplinary approach to supporting patients in primary care and in the community is of immense value. Each member of the team has a contribution to make, offering their unique skills and expertise to improve patient care and outcomes. The general practice nurse (GPN) is pivotal to the ongoing supportive care and management of patients living in the community. The profile of the GPN is one of leadership, commitment and responsibility, which should have access to and benefit from the additional roles reimbursement scheme (ARRS).

The role of the GPN is multifarious. We may be supporting the patient with a long-term condition, enabling them to self-manage, supporting and intervening, when necessary and promoting independent living. The trajectory of this support may involve anticipatory or future care planning, working with our community nurse colleagues and other services such as supportive palliative care teams, to ensure that the patient's voice is heard. What makes the role of the GPN distinct is that each of our roles is potentially different and diverse, depending on the needs of the practice population and the general practitioners. What is essential however, is that this unique position compliments the provision of services from our allied health professionals (AHPs) and tertiary service providers.

We need to promote the role of the GPN; just as our medical colleagues, the GPs are specialists in their area of practice, we too, are specialists in general practice. We have myriad skills and a depth of knowledge that enables us to move from a patient presenting with an acute illness, an acute wound, or a patient needing to talk to someone they know and trust, on their journey of ill-health. Our skills lie in the fact that we know our limitations, we promote wellness not illness, we support independence not dependence, and we have that strategic knowledge of the wider community.

Recognising these strengths, is what appears to be missing with ARRS. There seems to be a void in recognising the value of the GPN. We are competent at developing the workforce, the teams around us, and perhaps this is why we are engaged in developing others. There is no doubt about the contribution other members of the primary care team can give, but this should not be at the expense of missing the opportunity to develop GPNs who can show congruence with the direction of travel for primary care services.

Let us not lose sight of the value of the GPN as a senior healthcare professional, able and willing to show leadership and ensure that the GPN remains central to all decisions. Let us borrow the message embedded in the King's Fund document on shared decision-making — no decision about me without me (www.kingsfund.org.uk/sites/default/files/Making-shared-decision-making-a-reality-paper-Angela-Coulter-Alf-Collins-July-2011_0.pdf).

Julie Lennon
ANP/GPN NES education supervisor/adviser, Aultbea and Gairloch Medical Practice; Queen's Nurse

By recruiting such a high proportion of new staff through the ARRS, the role of the GPN is in danger of being devalued. ARRS roles are perceived as the 'life savers' of primary care — and there is no doubt that they have value — but GPNs have been central to the delivery of excellent care in general practice for decades.

A clear and explicit acknowledgement of the value of GPNs is needed, along with a plan to support GPNs to stay, grow, and develop in general practice alongside their colleagues. We risk losing GPNs to other areas of health and social care if attention is not turned to retaining their considerable skills and expertise. This loss would be hugely detrimental to the communities served by general practice.

The QNI is a solution-focused organisation, and looks forward to working with NHS England and other key stakeholders, such as the Royal College of General Practitioners (RCGP), on the implementation of the GP Access and Recovery Plan. We are keen to work with NHS England to determine what further support is needed now and in the future to retain, recognise and value the central role of GPNs in primary care.

As part of this, the QNI has surveyed registered nurses working in general practice in England to determine the impact of the ARRS on the primary care workforce. The survey included 21 questions and was completely anonymous. GPN

Engagement of GPNs is vital to improve health literacy and address health inequalities related to heart failure

Crucial role GPNs play in mitigating heart failure risk

A group of leading nurses have emphasised the crucial role of general practice nurses (GPNs) in reducing heart failure mortality and highlighted the need for more support in terms of specialised training.

In July, a discussion took place during a roundtable hosted by NHS England and the British Society for Heart Failure (BSH). The participants renewed their call for increased funding and protected time to empower GPNs in their efforts to lower mortality rates related to heart failure.

This roundtable discussion was part of a series of three gatherings aimed at exploring the involvement of GPNs in the BSH's '25in25' ambition, which aims to reduce mortality rates from heart failure by 25% within the first year of diagnosis in the next 25 years.

Poppy Brooks, chair of the BSH Nurse Forum, stressed the importance of engaging with general practice nursing early on due to their significant role in preventive care and public health. Lynn Mackay-Thomas, CEO of the BSH, agreed that GPNs are in a prime position to reduce heart failure deaths, especially because they handle numerous community appointments.

Silapiya Smith, heart failure nurse specialist, member of the BSH Nurse Forum

"By engaging with patients, primary care nurses can effectively communicate medical information and lifestyle advice to improve patients' understanding of heart failure.

Ms Mackay-Thomas also cautioned that the UK would face a significant increase in the ageing population over the 25-year timeline. She pointed out the lack of available secondary care services to cope with this demand, emphasising the need to diagnose and treat patients earlier.

The current data assessed by the BSH revealed that 80% of heart failure patients receive their first diagnosis during an acute hospital admission (National Institute for Health and Care Excellence [NICE], 2021), despite experiencing symptoms in the months before hospitalisation.

The roundtable participants agreed that GPNs are well positioned in their patient review appointments to check for common heart failure symptoms like fatigue, feeling breathless and fluid retention.

In addition, the roundtable acknowledged the crucial role of GPNs in enhancing health literacy and addressing health inequalities that contribute to heart failure risk. By engaging with patients, primary care nurses can effectively communicate medical information and lifestyle advice to improve patients' understanding of heart failure.

Louise Brady, the national primary care nursing lead for NHS England, highlighted the lack of awareness among the general public about heart failure compared to heart attacks. She emphasised that part of the work in general practice is promoting health and digital literacy and dispelling myths and misconceptions relating to heart failure.

The panel also emphasised the importance of establishing a 'careers competency framework' to develop the nursing workforce's skills and ensure that nurses are well-trained to manage heart failure effectively.

Sarah O'Donnell RN, general practice nurse and strategic lead for primary care and integration, Leeds Community Healthcare NHS Trust, stressed the need for increased funding for primary care to facilitate specialised training for GPNs, which is currently lacking due to inadequate funding. Ms O'Donnell also advocated for GPs to allocate more time for nurses to pursue further education, as the current workforce pressures limit opportunities for skill development. **GPN**

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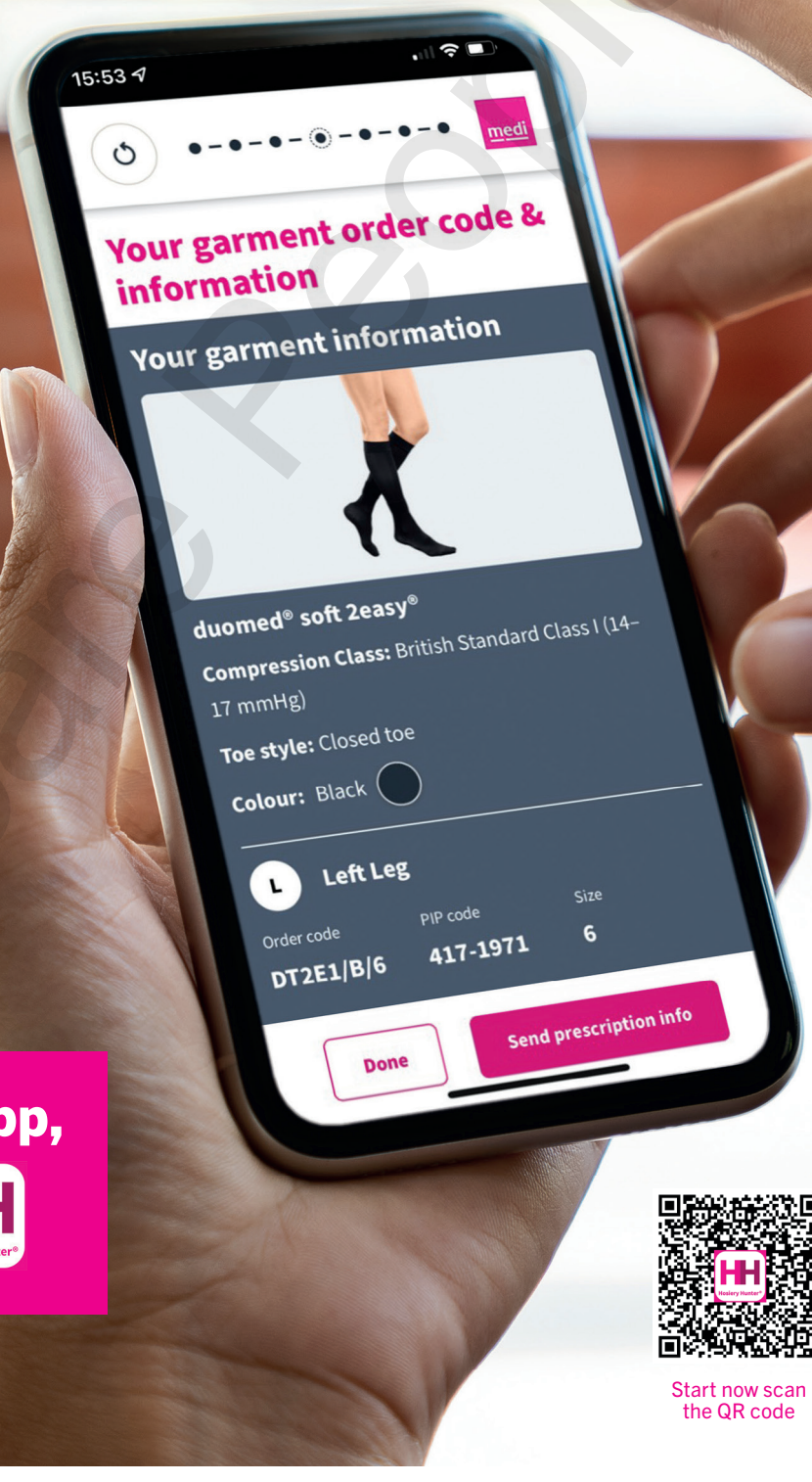

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Survey shines light on risk of disease-related malnutrition across health and care settings

Prevalence of malnutrition in UK health and care settings

BAPEN
Putting patients at the centre of good nutritional care

One of the most prevalent challenges associated with tackling malnutrition is the misunderstanding that surrounds it leading to this condition going unrecognised and untreated. Malnutrition can commonly be incorrectly understood as an inevitable result of the aging process, or a problem only faced by those living in the most extreme poverty. However, it is acutely important to understand that malnutrition caused by disease and illness is a widespread problem in the UK, and nurses can and do play an important role in identifying and managing malnutrition in their patients, clients or service users.

Malnutrition often goes unnoticed. When nutrition hits the headlines, it is typically regarding obesity or the 'desirability' of losing weight. The public health issue of malnutrition rarely receives the same level of attention. Widespread and preventable issues, such as malnutrition, necessitate collective and decisive action to ensure that the causes of malnutrition can be tackled promptly and effectively, as opposed to further down the stream. When malnutrition is not identified and treated, patients may face the consequences, which depend on their condition, but can include:

- Loss of muscle mass and function (poorer mobility, impaired respiratory function)
- Poorer quality of life
- Poorer response to treatment and recovery from surgery
- Higher mortality (Elia, 2003).

"Widespread and preventable issues, such as malnutrition, necessitate collective and decisive action to ensure that the causes of malnutrition can be tackled promptly and effectively... .

Importantly, once identified, this condition is largely treatable, with a nutrient-dense diet (energy and protein-rich foods, snacks, desserts and drinks), including a breadth of vitamins and minerals, together with the use of nutritional supplements and tube feeding/parenteral nutrition as appropriate. Dietitians and nutrition nurses can advise and support.

While anyone can be at risk of malnutrition, particular groups and demographics are at greater risk. This includes people with long-term conditions, such as diabetes, kidney disease, and chronic lung disease, and people with chronic progressive conditions, such as dementia or cancer. Furthermore, people who are frequently in hospitals are at greater risk of malnutrition, with 70% of patients weighing less on hospital discharge (Stratton et al, 2006).

Rebecca Stratton, chair, Malnutrition Action Group

2022 MALNUTRITION SCREENING SURVEY RESULTS

The BAPEN Malnutrition and Nutritional Care Screening Survey Report (2022) provides both a local and national picture of malnutrition prevalence and, since the survey has been carried out for four consecutive years, helps us to understand long-term trends. It was encouraging to have participation from all four nations in the UK in the 2022 survey and the hope is that with greater participation each year, a more comprehensive picture of malnutrition by country, setting, diagnostic group, and other demographic factors will develop.

Results from the 2022 screening survey, conducted in October 2022, revealed that nearly half (45%) of all adults screened across health and care settings in the UK were found to be at risk of disease-related malnutrition. This is the highest figure since this screening began four years ago.

The survey found that the prevalence of malnutrition was highest in individuals with:

- Cancer (62% at risk)
- Gastrointestinal conditions (50% at risk)
- Respiratory conditions (48% at risk)
- Frailty (45% at risk)
- Neurological diseases (43% at risk).

It was also found that when assessing malnutrition prevalence by setting, the findings indicated that risk is highest in those in their own homes (56% at risk) and in residents in care homes (55% at risk). In hospitals, 44% of patients were at risk of malnutrition.

Nurses continue to have an essential role across care settings to protect those at risk of malnutrition from becoming inhibited by its consequences. Nurses are well-placed to identify malnutrition risk and support in the development and implementation of nutrition and hydration care plans. The author would deeply encourage nurses to familiarise themselves with the 'Malnutrition Universal Screening Tool' ('MUST'), which is a reliable and easy to use screening tool that helps to identify malnutrition and malnutrition risk. She passionately believes that nurses, and other healthcare professionals, should use 'MUST' as a core element of best practice when it comes to patient care. Recognising the problem is the most important first step. Once individuals and those involved in their care are aware of the problem, often simple measures to increase food intake may be enough to reverse the downward cycle.

It is clear that the current malnutrition landscape is far from desirable, and this should be communicated to bring about meaningful, widespread changes that see malnutrition screening as being more commonplace. On a small scale, even in recent months, malnutrition has been on the agenda for Members of Parliament through the tabling of written questions and events by the All-Party Parliamentary Group (APPG) on nutrition. Moving the needle and creating long-lasting change takes time, often too much time, but gathering irrefutable evidence and holding holistic conversations frequently invites positive change.

MALNUTRITION AND NUTRITIONAL CARE SURVEY 2023

The 2023 BAPEN Malnutrition and Nutritional Care survey is currently open, and is live until 30 November. By completing the survey, you can play your part in paving the path for others to continue walking for years to come. Doing so, helps to understand trends and the use of different forms of nutritional support at a national level.

"... the current malnutrition landscape is far from desirable, and this should be communicated to bring about meaningful, widespread changes... .

In terms of holding holistic conversations, every year, BAPEN works alongside the Malnutrition Task Force to deliver UK Malnutrition Awareness Week. As part of the campaign, we ask everyone to 'Ask, Look, Listen' to help initiate conversations with older people about malnutrition. The below prompts can be used as a guide to help address the challenges about whether they are getting enough food and drink.

Ask

Ask how is the person's appetite, has it changed, and are there any difficulties with cutting, chewing or swallowing food? Do they feel they are eating and drinking enough? Have they noticed any unplanned weight loss? Do they have any new or long-term concerns?

Look

Look carefully to assess how well the older person is doing, being on the lookout for tell-tale signs of unplanned weight loss, such as looser clothing, rings, or dentures. Note how they climb stairs, walk short distances, and perform other activities of daily living. Also, consider any caring role they might have and keep your eyes open for signs such as empty fridges or cupboards, and appliances like fridges or cookers not working. Factors such as a local shop closing, inadequate access to public transport, and whether they can still do their own shopping are also important.

Listen

Listen carefully to what older people are telling you. It may not be directly about eating and drinking, but could be about loss, feeling lonely and low, losing interest in things, or a lack of energy to take part in activities that usually give pleasure.

CONCLUSION

The author was lucky enough to play a part two decades ago in one of the standout milestones in tackling preventable malnutrition. The development, validation, and launch of the 'Malnutrition Universal Screening Tool' was a substantial moment in improving our approach to identifying those at risk of malnutrition.

The screening survey uses 'MUST' and is a brilliant example of how we can continue to work to better understand the malnutrition landscape so that we can improve care for our patients. It is through progress like the development of 'MUST' and the contributions to the national screening surveys that we can develop a national impetus to gather the necessary information to address malnutrition on an everyday and systemic level. **GPN**

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To find out more...

More information about 'MUST' can be found at: www.bapen.org.uk/screening-and-must/must/introducing-must.

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Empowering transformation

Shift to supported shared care in UK wound management

Wound care in the UK has long been overlooked, often treated as a consequence of underlying health conditions rather than a distinct medical concern. However, as the prevalence of chronic wounds continues to rise, it is becoming increasingly evident that this perspective is unsustainable. Chronic wounds impact around 7% of the UK population, imposing a substantial burden on both patients and the healthcare system, with the NHS spending over £8.3 billion annually to manage the issue (*Making wound care work*: 9). Despite these alarming figures, wound care services remain understaffed and undervalued, straining to meet the rising demand for their expertise (*Making wound care work*: 4).

This situation was further exacerbated by the Covid-19 pandemic, which exposed the pressures facing wound care services in the UK. The pandemic acted as a catalyst, abruptly altering the landscape of healthcare delivery. Patients accustomed to in-person visits with healthcare professionals suddenly found themselves navigating the complexities of wound care on their own. Simultaneously, the dedicated wound care workforce was redirected to the frontline of the pandemic response, leaving many people with a chronic wound with a lack of guidance on how to care for their wound properly. This shift highlighted the need for a more resilient and adaptable approach to wound care that could ensure consistent, high-quality treatment regardless of external disruptions. There is evidence that this new approach works for patients (*Making wound care work*: 9–10).

“Supported shared care represents a shift to a new era of patient-centred wound management, and embraces a collaborative model where patients become active participants in their own care.

In 2022, Mölnlycke Wound Care conducted research into how to optimise wound care services for patients and healthcare professionals, which was published in *Making wound care work*. In the report, patients with a chronic wound reported a range of experiences when it comes to their care — some feel ‘empowered’ by caring for a wound by themselves, while others say they do not feel confident enough to do so. Simultaneously, nurses reported feeling concerned about the worsening outcomes. This is where supported shared care can provide a solution, but it is not a magic bullet. There are patients who — for many different reasons — will be either unable or unwilling to take the lead on their own care, and it is vital that their needs and considerations are taken into account. To make the approach to improving wound care truly patient-centred, it needs to have enough flexibility to fit around patient needs.

Supported shared care represents a shift to a new era of patient-centred wound management, and embraces a collaborative model where patients become active participants in their own care. This approach acknowledges that patients possess valuable insights into their care, and so seeks to harness these to tailor wound care treatment plans that align with individual needs and preferences.

However, it is important to dispel any misconceptions about supported shared care. It is not synonymous with leaving patients entirely to their own devices, nor does it require round-the-clock specialist attention. Rather, it signifies a balanced, dynamic method that recognises patients’ agency, while maintaining a consistent level of expert guidance to help

Ali Hedley, medical and professional affairs manager UK, Mölnlycke Health Care

them. Supported shared care calls for a flexible framework that accommodates patients' schedules, routines, and comfort levels. For some, this will be very minimal nurse intervention; for others, specialist care will be extensive. This approach, underpinned by ongoing communication and collaboration between patients and healthcare professionals, ensures that treatment is administered at the optimal times and in the most effective ways.

Following the *Making wound care work* report, two focus groups were held comprising patients and healthcare professionals, to understand how supported shared care can work for them. Collaboration, both between services and between healthcare professionals and patients, was cited as a core priority for patients with a chronic wound. They expressed a desire to have their voice heard, whether this be through shared decision-making at the community level, or for their practical needs to be embedded in the decisions being made by policymakers in Westminster and the NHS. It was clear that supported shared care offers a route to this.

One of the fundamental pillars of supported shared care is education. Empowering patients with the knowledge they need to understand their wound and its healing process fosters a sense of control and autonomy. When patients comprehend the rationale behind certain interventions and the expected outcomes, they are more likely to adhere to treatment plans and make informed decisions about their own care. Education also extends to wound prevention strategies, equipping patients with tools to minimise the risk of chronic wounds recurring or worsening — something that can benefit the public at large.

In a similar vein, the lack of data available on chronic wounds, and how better data can lead to better care, needs to be looked at. Supported shared care can only work when everyone has access to the same standard of care, no matter where they are in the country. Currently, in the author's opinion, not enough is known about the real impact of chronic wounds on patients, nor can measures of improvement sufficiently be tracked.

"Supported shared care can only work when everyone has access to the same standard of care, no matter where they are in the country.

Healthcare professionals in the focus groups emphasised the value of a wound care registry to standardise the measurement of wound care outcomes across the country. This could also record and monitor healing rates, and include data on treatments and dressings, to ensure that clinicians can understand what interventions work well. Indeed, providing this information creates a solid foundation for both clinicians and patients to inform their care plan and enable a more personalised approach to wound care.

Without supported shared care encompassing these two principles, it cannot function effectively enough to change the way wound care is delivered in the UK.

We are currently experiencing a pivotal moment in the evolution of wound management in the UK and have a unique opportunity to make a change. Embracing a supported shared-care approach not only acknowledges the inherent value of patients' perspectives, but also demonstrates a commitment to fostering collaboration and empowerment within the healthcare system. By integrating education, data standardisation, and ongoing communication, supported shared care paves the way for a more resilient and adaptable wound care framework.

As patients and healthcare professionals collaborate to shape treatment plans aligned with individual needs, the promise of improved outcomes, better prevention strategies, and a more holistic approach to wound care becomes not just a possibility, but a tangible and vital reality for the future of healthcare in the UK. **GPN**

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Study of 27,540 people reveals that earlier effective mental health care could improve millions of lives

Essential insights that could improve mental health care

ieso delivers therapy for common mental health conditions, such as anxiety and depression, and strives to improve patient outcomes by understanding how these are related to the therapy received by the patient.

To fulfil this mission, we wanted to better understand the health and economic impact of different therapy types, e.g. digital interventions against standard mental health services. In particular, exploring how factors such as waiting and treatment times, and treatment effectiveness, impact patients' health and mental healthcare costs.

To answer these questions, ieso partnered with Dorset HealthCare University NHS Trust and York Health Economics Consortium (part of the University of York) to conduct an economic evaluation of mental healthcare for mood and anxiety disorders, which was published in *Nature Mental Health* on 31 August 2023 (Catarino et al, 2023).

The results were extremely insightful and could help encourage positive changes to the way mental healthcare services are delivered.

The findings from this study go beyond treatment type or modality, showing that to alleviate human suffering and reduce economic impact on society, timely access to effective mental healthcare interventions is key.

REAL-WORLD PATIENT DATA IS ESSENTIAL

This innovative study analysed de-identified data from 27,540 people who were receiving treatment from NHS Talking Therapies for anxiety and depression, delivered by fully trained and accredited NHS practitioners (www.nhs.uk/mental-health/talking-therapies-medicine-treatments/talking-therapies-and-counselling/nhs-talking-therapies/).

In most healthcare systems around the world, the clinical effectiveness of mental healthcare is not reliably measured (Clark et al, 2018). The NHS Talking Therapies programme in the UK is an exception, with patients' depression and anxiety symptoms measured at every stage of treatment, from referral to discharge, and at every therapy session.

By using clinical outcomes data measured at scale, this study could show how important it is to provide rapid access to effective mental health treatment. The data used, tracked individuals through their treatment, providing information on number of sessions, waiting times, engagement with treatment, and clinical outcomes in a real-world clinical setting and better reflecting true human behaviour in therapy sessions.

Ana Catarino, director of clinical sciences, ieso Digital Health

The results from this rich real-world dataset found that shortening waiting and treatment times for mental healthcare could significantly reduce the financial burden on the NHS.

However, the results also show that timely access to care must not compromise on clinical effectiveness, highlighting the importance of evidence-based, effective mental health interventions to improve the quality of life for millions of people across the UK.

SHORTENING WAITING TIMES COULD SAVE MILLIONS OF POUNDS AND IMPROVE LIVES

In the author's clinical opinion, everyone should have access to effective mental healthcare, when and where they need it. Unfortunately, we know this is not the case.

This report supports the findings of previous economic studies, showing that the substantial cost of mental health conditions does not come from treating them, but rather from not treating them.

Regardless of therapy type, mental health treatment costs are minimal compared to costs that are incurred if a person does not receive treatment, as they are more likely to seek support from other healthcare services for comorbid physical health symptoms, including GP visits, general practice nurse (GPN) appointments, and even A&E visits. Furthermore, mental health issues impact not only the patient, but also those around them — their families, friends, employers and colleagues. By providing rapid access to effective mental health interventions, patients are more likely to be able to regain their former state of wellbeing, and return to the way they used to function in their everyday lives.

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Last year, 1.8 million people accessed NHS Talking Therapies services across the UK. With one in six adults in the UK experiencing clinical symptoms of depression or anxiety (Mind, 2023), that leaves potentially 7.1 million people (Office for National Statistics [ONS], 2021) currently experiencing clinical symptoms of anxiety and depression, but who are not accessing NHS Talking Therapies services. With the prevalence of mental health conditions on the rise due to the cost-of-living crisis and the fallout from the pandemic, this number is likely to increase every year.

This study shows that shortening waiting and treatment times for those already accessing NHS Talking Therapies services from six to three months, could substantially reduce the financial burden on the NHS. If similar levels of access to NHS Talking Therapies are extended to all those in need, this could mean annual savings of around £600 million (Catarino et al, 2023), as well as a significant improvement in the quality of lives for millions of people across the UK.

WHAT DOES THIS MEAN FOR GENERAL PRACTICE NURSES?

For many patients, GPNs and other healthcare professionals on the ground can be the first point of contact, so they play a crucial role in the early detection and signposting of patients with mental health conditions. More often than not, these patients also present with physical comorbidities, such as diabetes, which may be associated with or exacerbated by delays in mental health treatment.

There are various factors that could cause a delay in patients presenting to services with mental health complaints. For some, there is a stigma associated with suffering from mental health symptoms. For others, making an appointment to speak to a healthcare professional about their mental health can be a significant barrier.

What this study shows is that as soon as a patient presents to a

healthcare service with a mental health condition, it is important that effective therapy is delivered in a timely manner, not only to improve the patient's likelihood of clinical recovery, but also to reduce the wider economic impact of these conditions.

CHAMPIONING A BRIGHTER FUTURE

As this study demonstrates, by modelling real-world healthcare data we can enable new discoveries and insights that could transform our mental healthcare system for the better.

This investigation has revealed how important it is to provide rapid access to effective mental health treatment, as long waiting times or poor-quality interventions can disadvantage patients and escalate health system costs in the future.

This data needs to be used to drive more research on the causes of mental health conditions, and why different people respond better to different types of therapy. This information can then be used to make existing products and services more effective, and to develop new ones.

Moving forward, ieso is focusing on developing scalable digital tools that combine human care and forms of online therapy. These will allow individual therapists to help more people and enable fast access to effective care.

By using this system of measurement for mental health treatments, the NHS has set a new standard for data-enabled care that could positively impact policy and care delivery, not just in the UK, but also in health systems around the world. **GPN**

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Escape the waiting room

Innovative training approach to wound management for GPNs

Here, Susan Brookes, clinical and deputy lead, Birmingham and Solihull Training Hub (BSolTH), explains how they set themselves a challenge — namely, how could they ensure that the future general practice workforce understood and appreciated the ever-evolving roles within it? Not only that, how could they show the symbiotic relationships of these roles, include learning opportunities and make it innovative, fun and enhance other skills required to promote confident and competent practitioners? The team then went about creating an escape room experience using the background of gamification as their guide. This first 'room' was created for nurses and linked to wound management. Although early days in terms of its use, the initial feedback was good and BSolTH look forward to developing more rooms across a wider range of healthcare professionals.

There have always been major challenges within educational pedagogy in relation to keeping students engaged — providing innovative and stimulating learning environments and managing diverse student learning styles being just a few. One challenge still greatly evident post pandemic is the lack of engagement from students (Tavares, 2022). The introduction of an escape 'room' style teaching method was considered an innovative way of re-engaging students with each other in person.

GAMIFICATION

The inclusion of serious games within nurse education was the area of exploration within Min et al's (2022) systematic review. The papers reviewed were found to be diverse in nature relating to content and types of gamification elements. However, they concluded that knowledge and skills gained by participants and the variety of production methods was a useful approach to learning for both nursing students and qualified staff.

Kasal and Sabol (2022) define an escape room as 'life-like environments in which participants work together to solve a succession of puzzles to escape a locked room in the allotted time'. This alternative approach to learning allows for face-to-face interaction amid a digital domain, spanning across generations of students/practitioners.

"The escape room methodology would not only provide an opportunity to gain and strengthen wound management knowledge, but also help healthcare professionals with clinical decision-making skills.

FRIENDLY COMPETITION

The challenge of student engagement is not only apparent in educational settings, but should also be considered in the clinical environment for learning. With this in mind, the Birmingham and Solihull Training Hub (BSolTH) team collaborated to develop an escape room experience directed at healthcare professionals working in a primary care setting, focusing on wound care management.

The escape room methodology would not only provide an opportunity to gain and strengthen wound management knowledge, but also help healthcare professionals with clinical decision-making skills (Casler, 2022). In addition, team working, friendly competition and problem-solving skills would be explored. Carroll and Morse (2022) identified that designing and engaging learners in active learning are critical skills for nursing, with the resulting educational pay-off of increased engagement and learning.

ESCAPE THE WAITING ROOM

A backstory and 'patient' were formulated around seven puzzles with a wound management focus. For example, a word search relating to functions of the skin and a padlock code puzzle focusing on the stages of wound healing. The 'Escape the Waiting Room' gamification experience involved participants/players solving puzzles, with the answers linking to a series of numbers or letters to unlock padlocks and key codes. These locks once opened and accessed, provided items, such as a dressing pack and appropriate dressing to be applied to the patient's wound, to prepare a fictitious waiting room and allow the players to call the patient in for consultation and treatment (*Figure 1*).

The room has a timeframe of one hour and requires two to five players. The first group of students to complete the escape room did so in an immersive environment at their university. This environment enhanced the experience for the players by simulating a treatment room setting in a safe environment.

Puzzles can be solved in any order and limited clues can be provided on request. All the

answers to the puzzles can be found within the room by using apps on the tablet, textbooks and leaflets/posters.

Players sign consent forms before the experience to allow photographs to be taken and evaluation data is collected after the event.

The room was first undertaken by two sets of second year BSc nursing students, and both teams were able to complete the experience successfully within the allotted one-hour timeframe.

As part of the learning package, a teaching session focusing on wound management was also developed and made available to the 'teams' prior to the 'escape' being attempted. The escape room experience followed approximately two to three months after the teaching session had taken place. The puzzles were formulated from the wound management session content. This allows recall and assessment of embedded knowledge to be evaluated. Diaz (2017) identified that prior knowledge is an integral part of learning, where knowledge links together to reconstruct and improve learning processes.

Results

On completion, the players evaluated the escape room via MS Forms.

Student feedback comments

There were a total of nine responses. The students were 100% satisfied with the experience, finding it interesting and useful. 80% reported that the event was well organised, with 100% of respondents understanding the gamification process and being interested in learning more about the escape room.

Students were also given the opportunity to provide comments, i.e:

It was a nice experience as it was my first time doing the escape room game. It's fun and educative at the same time.

Everything was really great.

Staff/game hosts feedback

Feedback was provided from the game hosts in an anecdotal method. The hosts identified that they enjoyed the experience, observing the changing dynamics of the players during it. The host also noted how the players applied theory to practice within the room:

A great interactive and learning experience for us all.

RECOMMENDATIONS AND CONCLUSION

The BSolTH consists of several healthcare professionals, namely:

- Pharmacist
- Pharmacy technician
- Physician associate
- General practice nurse
- Nurse associate
- First contact practitioner physiotherapist
- First contact practitioner paramedic
- Advanced practitioner.

It is envisaged that utilising the same backstory and patient, an escape room experience package will be developed, to incorporate all the healthcare professional roles, for example, first contact practitioner paramedic working in primary care.

Recreational escape rooms are becoming increasingly popular across education and team building events. However, few published escape room designs have been truly interprofessional (Dittman et al, 2021). Ultimately, the escape room experience package will showcase the symbiosis of each practitioner role within the BSolTH. GPN

FIGURE 1.
Escape room process.

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Ignoring oral health can put general health at risk

Oral disease can significantly impact systemic health, and vice versa. This article highlights the potential mechanisms of how gum disease (periodontitis) and root canal infection may exacerbate various chronic illnesses, such as cardiovascular disease, diabetes and dementia. The bi-directional relationship is discussed whereby immune-compromised patients may experience poor healing after dental treatment. As many oral diseases are preventable, oral healthcare professionals can play a vital role in improving awareness and educating patients on the association between good oral health and their general health. Greater interdisciplinary collaboration is key to improving patient care.

KEY WORDS:

- Oral health
- Periodontitis
- Tooth decay
- Infection
- Chronic illnesses

Shalini Kanagasingam

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Photograph: Pixel-Shote/Shutterstock

When it comes to maintaining overall health, optimal oral health is an essential part of the equation. Research continues to reveal the relationship between oral and systemic diseases (Winning and Linden, 2015; Kanagasingam et al, 2020). The oral conditions that most affect overall health and quality of life include tooth decay or cavities, which can lead to root canal infection. If left untreated, root canal infection can lead to severe toothache, swelling and spreading infection or abscess (Shah et al, 2013). Also, severe gum disease known as 'periodontitis' manifests as bleeding gums, the appearance of longer teeth due to shrinking gums as well as loose teeth, due to the destruction of the soft tissue and bone which supports teeth. Ultimately, root canal infection and periodontitis can lead to tooth loss (Farina et al, 2021; Van Nieuwenhuysen et al, 2023).

Studies have shown that patients with severe tooth loss will experience speaking difficulties, have impaired eating efficiency and nutritional inadequacies. However, the impact of such health issues can be much wider — patients have also been reported to experience increased levels of depression and anxiety, reduced self-esteem and social isolation (Steele et al, 2004; Segura-Egea et al, 2015).

Patients may not be aware of the mounting evidence which highlights how these oral diseases can contribute to various chronic illnesses (*Figure 1*), including:

- Cardiovascular disease
- Diabetes
- Adverse pregnancy outcomes
- Metabolic syndrome
- Dementia
- Respiratory disease
- Chronic kidney disease
- Rheumatoid arthritis and cancer

(Winning and Linden, 2015; Kanagasingam et al, 2020).

ORAL INFECTION LEADING TO SYSTEMIC DISEASE

Periodontitis and root canal infection are a reservoir of pathogenic microbes in the mouth. Bacteria, such as *porphyromonas gingivalis*, which has been implicated in both of these oral diseases, can seed directly from the oral tissues into the systemic circulation and affect specific organs. Microbial by-products can also indirectly cause systemic inflammation. Repeated or chronic oral infections increase circulating cytokines and inflammatory mediators, which can be detrimental to patients' existing chronic illnesses (Segura-Egea et al, 2015; Winning and Linden, 2015; Kanagasingam et al, 2020).

HOW DOES ORAL DISEASE IMPACT CARDIOVASCULAR HEALTH?

Periodontitis has been reported to negatively impact cardiovascular disease (CVD) (Sanz et al, 2020). Interestingly, the oral pathogens, *porphyromonas gingivalis* and *aggregatibacter actinomycetemcomitans*, have been detected in athero-thrombotic tissue. These bacteria can

adhere to vessel walls and initiate atherosclerotic plaques, thereby increasing patients' risk of myocardial infarction (MI), angina, stroke and aneurysm (Tonetti et al, 2013; Winning and Linden, 2015).

Similarly, root canal infection contributes to increased levels of systemic inflammatory markers, thus heightening the chances of atherosclerosis and CVD in susceptible patients. Current evidence suggests that effective periodontal therapy and root canal treatment can have a 'protective' effect on vascular and systemic health (Sanz et al, 2020; Bakhsh et al, 2022).

HOW CAN ORAL DISEASES AFFECT PATIENTS WITH DIABETES?

A strong bi-directional relationship exists between oral disease and diabetes. Poor oral health amplifies inflammation throughout the body involving the vascular supply to the pancreas and other organs involved in glucose regulation. The resulting impairment in insulin production impacts glycaemic control and may put individuals at greater risk for type 2 diabetes (Sanz et al, 2018). In the author's clinical opinion, diabetic patients with periodontal disease should be made aware that they will be at higher risk for other complications of diabetes, such as cardiovascular and kidney disease.

On the other hand, patients with diabetes are more susceptible to root canal infection and periodontal diseases due to their weakened immune system and impaired wound healing capabilities (Sanz et al, 2018). Poor diabetic control may also increase the risk of failure when dental treatment is implemented to manage the oral diseases (Segura-Egea et al, 2015; Winning and Linden, 2015).

A thorough oral examination must involve comprehensive periodontal assessment as well as investigations for other oral complications, including dry mouth, burning mouth and opportunistic fungal infections (Khan, 2018). This is especially important for patients who wear dentures. These patients should be advised to practice meticulous oral and denture hygiene in addition to leaving out their dentures overnight (Gov.UK, 2021).

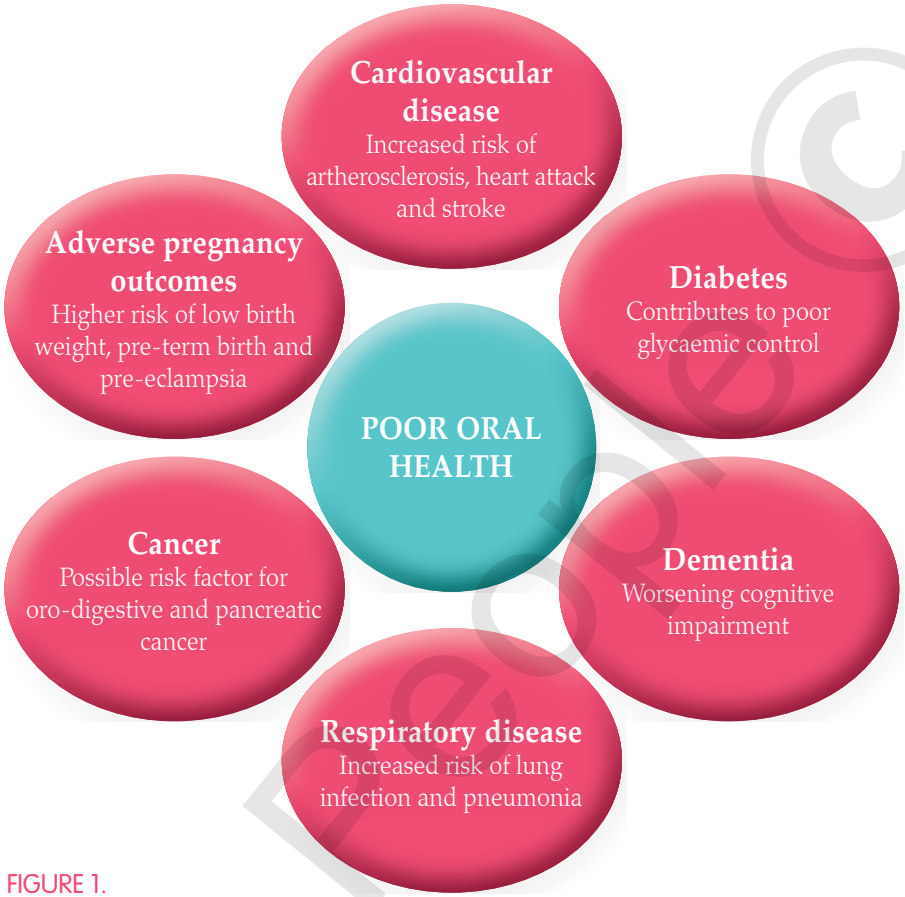

FIGURE 1.
Systemic diseases associated with oral diseases (Winning and Linden, 2015; Kanagasingam et al, 2020).

WHAT IS THE LINK BETWEEN ORAL HEALTH AND DEMENTIA?

Porphyromonas gingivalis has been implicated as a risk factor for Alzheimer's disease, which is the most common type of dementia. It is believed that this bacteria may contribute to the development of plaques and neuronal damage in the brain, both of which are hallmarks of Alzheimer's disease (Kanagasingam et al, 2020).

One of the two main lesions of brain damage in those suffering from Alzheimer's disease is an extensive build-up of 'amyloid-beta' protein. It was believed that the amyloid-beta protein in those suffering from Alzheimer's disease was produced by local cells in the brain. However, scientists now understand that these specific proteins are released by the body as a response to infection and can therefore be produced by all cells in the body. Because oral diseases are driven by infections, there is an abundance of amyloid-beta protein within and around the external surfaces of infected teeth (as seen in periodontitis and root canal infection). The protein may then filter into the blood circulation, where it can potentially be transported to the brain (Kanagasingam et al, 2022). Patients with untreated periodontitis have been reported to experience accelerated cognitive impairment and an increased risk of developing dementia (Nadim et al, 2020). Moreover, there is evidence to support the favourable effect of periodontal treatment on Alzheimer's disease-related brain atrophy (Schwahn et al, 2021).

HELPING PATIENTS TO MANAGE ORAL HEALTH AND WELLBEING

Most patients with chronic illnesses have poor knowledge and awareness of the links between their condition and their oral health (Akl et al, 2021). This problem is made worse by the prevalence of misinformation on various social media platforms

Table 1: Useful oral health advice to share with patients (adapted from Gov.UK, 2021)

■ Brush your teeth with a fluoride toothpaste containing 1350 to 1500ppm fluoride twice a day (before bedtime and on one other occasion)
■ Reduce the amount and frequency of sugar intake, avoid smoking and other tobacco products, and do not exceed the recommended level of alcohol consumption
■ Visit your dental professional (dentist or dental therapist) for regular check-ups. The dental team will advise how often you need a check-up based on your oral health status
■ See your dentist urgently if you notice the following: • unexplained ulceration in the mouth lasting for more than three weeks • persistent and unexplained lump in the neck • a lump on the inner or outer lip or in the mouth • a red patch in the mouth • persistent unexplained hoarseness • persistent pain in the throat or pain on swallowing lasting for more than three weeks

which can be detrimental to patients' decision-making (McLean et al, 2023).

Healthcare professionals, including general practice nurses (GPNs), have the opportunity to increase awareness and educate patients on the importance of maintaining good oral health in order to improve their general health, including regular oral cancer screening (*Table 1*). Oral diseases, such as periodontitis, tooth decay and root canal infections, are preventable and treatable should patients visit their dental team regularly. Indeed, in the author's clinical opinion, medical and dental professionals should work collaboratively to manage patients with chronic medical conditions and concurrent oral disease.

CONCLUSION

Healthcare professionals can work more closely with national partners across health and social care, including patient groups, as well as dental professional bodies (e.g. British Dental Association, British Endodontic Society and the British Society of Periodontology) to develop a strategic approach to dissemination of oral health education to at-risk populations. Patients would certainly benefit from greater interdisciplinary collaboration. GPN

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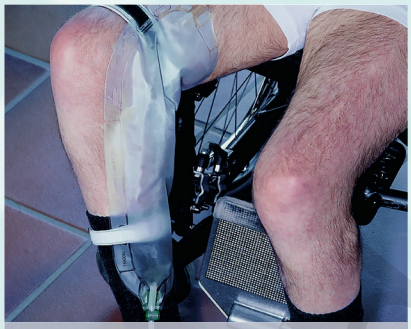

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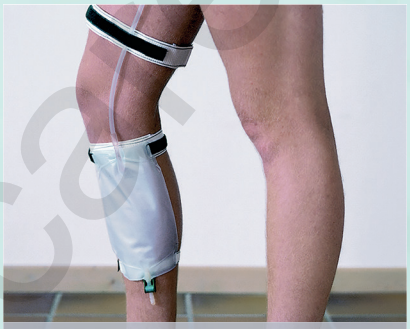

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Abnormal menstrual bleeding patterns: what GPNs should know

Abnormal bleeding of any type is a cause of concern for women affected and is a frequent presentation in primary care. This is the second piece in a two-part series, the first part discussed amenorrhoea and oligomenorrhoea, while this article looks at dysmenorrhoea and menorrhagia. It gives an overview of signs and symptoms, risk factors, treatment and complications, with the purpose of giving nurses and non-medical prescribers more confidence in advising women who approach them for advice, so that earlier diagnosis and treatment can be possible to improve outcomes and quality of life.

KEY WORDS:

- Dysmenorrhoea
- Menorrhagia
- Management
- Complications
- Prognosis

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Photograph: Janpen Boonbao/Shutterstock

The second article in this two-part series on abnormal bleeding patterns in women covers dysmenorrhoea and menorrhagia. Any abnormal menstrual bleeding, be it in younger or older women, is distressing and can have a significant impact on activities of daily living as well as health and overall wellbeing.

Healthcare professionals, including nurses and non-medical prescribers, should have a good understanding of the various aspects related to abnormal menstrual bleeding to provide effective support and care for women experiencing these issues. With this in mind, this paper discusses signs and symptoms, risk factors, diagnosis, treatment and complications for each of these conditions in order to:

- Get earlier diagnosis and treatment
- Reduce symptoms
- Minimise the risk of complications
- Improve quality of life for those affected with these distressing complaints.

MENSTRUAL CYCLE

This was briefly explained in the first article of this two-part series (Perry, 2023), but a quick recap will be given here. The menstrual cycle occurs on a monthly basis in preparation for possible pregnancy. Ovulation is the process in which an egg is released from the ovaries each month and in combination with a series of complex hormonal changes, the uterus is prepared for pregnancy. If following ovulation, fertilisation does not take place, the lining of the uterus is shed via the vaginal canal — this is the menstrual period. For most women, this process follows a regular pattern, however, the duration of the monthly bleed and the amount of blood loss can be variable, such as in cases of menorrhagia.

DYSMENORRHOEA

This is defined as painful cramping pains in the abdomen, which often begins at the onset of menstruation (McCormack, 2018). It is generally classified as one of two types (National Institute for Health and Care Excellence [NICE], 2018):

- Primary dysmenorrhoea: this usually occurs in young females and often becomes problematic six to 12 months after menarche and when cycles have become regular. This type is not associated with any other medical diseases or abnormal pathology
- Secondary dysmenorrhoea: this frequently becomes evident several years after painless periods and is caused by an underlying gynaecological problem (*Table 1*).

MENORRHAGIA

Menorrhagia is the term used to describe menstruation at regular

cycle intervals but with excessive flow and a longer duration of blood loss (Shaw, 2022).

PREVALENCE RATES

Statistics reporting prevalence rates of primary dysmenorrhoea are highly variable, but the condition is generally reported to have a greater occurrence in young women, with estimates ranging from 67–90% for those aged 17–24 years of age (Ju et al, 2014). Among older women (more likely to have secondary dysmenorrhoea), rates are less consistent and vary between 15% and 75% (BMJ Best Practice, 2023).

Menorrhagia is a common reason for women to seek advice from clinicians. Estimates suggest that approximately 37% of adolescents are affected (Dhillon-Smith, 2020). Women experiencing heavy menstrual bleeding are one of the most common reasons for gynaecological consultations in both primary and secondary care, with around one in 20 women aged 30–49 consulting their GP each year because of heavy periods or menstrual problems (NICE, 2021), and menstrual disorders are estimated to comprise around 12% of all referrals to gynaecology (GP Notebook, 2018).

RISK FACTORS

Multiple risk factors have been studied for both primary and secondary dysmenorrhoea, as well as menorrhagia, and the following have been noted as relevant and likely to be influential.

Primary dysmenorrhoea

Several factors have been proven to increase the risk of primary dysmenorrhoea, such as:

- Early menarche
- Nulliparity
- Irregular menstrual cycle
- Long menstrual duration
- Heavy menstrual flow
- Family history of dysmenorrhea — women with a family history have been found to have a 2.5 times higher risk than those without (Karout et al, 2021).

Table 1: Underlying causes of secondary dysmenorrhoea (NICE, 2018)

Cause	Additional information
Pelvic inflammatory disease (PID)	■ Patients usually present with lower abdominal pain which may be accompanied by abnormal vaginal discharge, bleeding, and dyspareunia (pain during intercourse). Fever may be present in acute infection
Fibroids	■ Frequently associated with menorrhagia and the patient may have lower abdominal pain. A pelvic mass may be palpable on abdominal examination
Endometriosis/adenomyosis	■ Patient will experience chronic pelvic pain or cyclical pain, which frequently occurs prior to menstruation and will be associated with heavy menstrual bleeding and dyspareunia
Ovarian cancer	■ Characterised by loss of appetite and/or early satiety, abdominal distension and abdominal or pelvic pain. The patient may have abnormal bleeding or postmenopausal bleeding with additional symptoms of nausea or dyspepsia
Cervical cancer	■ Associated with abnormal bleeding (intermenstrual and postcoital bleeding or post-menopausal bleeding). Patients may have pelvic pain and dyspareunia and there may be a blood stained or purulent vaginal discharge
Intrauterine device (IUD) insertion	■ Dysmenorrhoea may develop six to 12 months after insertion with the onset of longer and heavier periods, frequently associated with intermenstrual bleeding or spotting. Removal and alternative method of contraception may be needed

Evidence to suggest an association with modifiable risk factors (such as obesity, smoking, diet, or depression) has previously been inconsistent (Ju et al, 2014). However, smoking is now considered to be a contributary factor (Karout et al, 2021). In addition, obesity, and a high body mass index (BMI) are thought to be potential causative factors (Nagy and Khan, 2022).

Secondary dysmenorrhoea

Risk factors will depend on the underlying cause (NICE, 2018; *Table 1*).

Menorrhagia

There are many causes of heavy menstrual bleeding, but in approximately 50% of women investigated, no cause can be found (Centers for Disease Control and Prevention [CDC], 2022). Factors contributing to menorrhagia can be divided into several categories — some common, others less so.

Common causes and risk factors are discussed below (CDC, 2022; NICE, 2023), while others are shown in *Table 2*:

- Systemic conditions: hypothyroidism, diabetes (types 1 and 2), and liver or renal disease can be associated with menorrhagia (NICE, 2023)
- Uterine and ovarian pathologies: fibroids, polycystic ovary syndrome (PCOS) (causes anovulatory menorrhagia and irregular bleeding) (NICE, 2023), cancer of the uterus, endometrium, cervix and ovary, pelvic inflammatory disease (PID)
- Polyps: both cervical and endometrial polyps may cause heavy bleeding
- Medications: medications

Red Flags

- Primary dysmenorrhoea is generally observed in younger women with onset occurring six to 12 months after menarche
- Secondary dysmenorrhoea is more prevalent among older women and is caused by an underlying medical condition
- Menorrhagia may have no identifiable cause in 50% of those affected, or may be caused by systemic conditions, uterine, or ovarian problems, or occur as a result of medications.

Table 2: Other causes of menorrhagia (CDC, 2023)

Possible cause	Additional information
Medications	■ Non-steroidal anti-inflammatory drugs (NSAIDs), selective serotonin reuptake inhibitors (SSRIs), oral contraceptive pills, antiplatelets
Adenomyosis	■ This is a condition where the inner lining of the uterus grows into the muscle wall of the uterus itself
Coagulation disorders	■ For example, von Willebrand's disease, which is an inherited condition associated with tendency to bleeding easily due to lack of von Willibrand factor, a protein which helps with blood clotting
Hyperprolactinaemia	■ High levels of prolactin in the blood may lead to menstrual problems. May be caused by a benign tumour on the pituitary gland
Cancer	■ Cancer of the cervix, endometrium, ovary, or uterus
Pregnancy-related problems	■ Miscarriage and ectopic pregnancy can cause abnormal bleeding

which interact with platelets and coagulation factors can lead to menorrhagia (Walker et al, 2023). These are discussed in *Table 2*, alongside other causes

- Contraceptives: use of certain contraceptives, such as the intrauterine device (IUD)
- Obesity: this is now regarded as influential in the onset of many health problems. It impacts on every organ system, and in women leads to unopposed oestrogen with the possible development of PCOS (Walker et al, 2023). Menorrhagia may occur in PCOS as a result of hormonal imbalances arising as a result of the condition.

PATHOPHYSIOLOGY

Primary dysmenorrhoea

The underlying cause of dysmenorrhoea is poorly understood. Current theories suggest increased secretion of prostaglandins plays an important role and this is thought to cause increased myometrial contractions and vasoconstriction, leading to uterine ischaemia, hypersensitisation of pain fibres and the onset of pelvic pain (Itani et al, 2022). Leukotrienes are also thought to heighten the sensitivity of pain fibres in the uterus, with substantial amounts of leukotrienes found in the endometria of women with primary dysmenorrhoea that does not respond to treatment with prostaglandin antagonists, such as non-steroidal anti-inflammatory drugs (NSAIDs) (Dong, 2021).

The posterior pituitary hormone, vasopressin, may also be involved in myometrial hypersensitivity and reduced uterine blood flow (Dong, 2021), and vasopressin's role in the endometrium may be related to an increase in prostaglandin synthesis and release (Dong, 2021).

Secondary dysmenorrhoea

In some cases, elevated prostaglandin levels may play some part in the pain associated with secondary dysmenorrhoea, as increased secretion of elevated prostaglandin levels has been found in the endometrial fluid of women with endometriosis, with levels correlating well with the degree of pain (Dong, 2021).

Menorrhagia

The underlying aetiology of menorrhagia remains unclear, but current knowledge suggests that any process which interferes with the normal functions of the endometrium, as well as possibly any interference with myometrial contractility, can potentially cause heavy bleeding (Hapangama and Bulmer, 2016).

SIGNS AND SYMPTOMS

Primary dysmenorrhoea

In addition to the pain experienced with dysmenorrhoea, many women affected also experience additional symptoms. These may be physical, such as headaches, fatigue, appetite changes (either increased or decreased), nausea, vomiting and bloating, or psychological, such as anxiety and depression (Itani et al, 2022). Additional symptoms include diarrhoea, constipation, or both, along with vomiting and indigestion, irritability, low back pain, tiredness and dizziness resulting in absenteeism from school or work due to the symptoms (Nagy and Khan, 2022).

Latthe et al (2006) reported that depression and anxiety were three times greater in women suffering with dysmenorrhoea, compared to those without the problem.

Secondary dysmenorrhoea

As secondary dysmenorrhoea is associated with an underlying cause, women may begin to experience more painful periods after years of having only mild period pains.

In some women with secondary dysmenorrhoea, pain may begin several days before bleeding starts and last all the way through the period (McKechnie, 2023).

Menorrhagia

Women may describe excessive bleeding which may be prolonged, lasting for several days. They may need to change pads or tampons frequently during the day, and in some cases at night, and there may be bleeding through to clothes or bedclothes with blood clotting (Walker et al, 2023). If there are any red flags, referral on an urgent two-week wait will be needed. More information is shown in *Table 3*.

Red Flags

- Primary dysmenorrhoea is often associated with additional symptoms, which may be physical or psychological
- Secondary dysmenorrhoea begins years after previously normal periods and there is frequently an underlying cause
- Menorrhagia is more likely to occur at menarche or in women approaching the menopause. In older women, onset of heavy periods can also suggest the presence of an underlying cause.

DIAGNOSIS

In the primary care setting, investigations will include abdominal examination, bloods (full blood count [FBC] to exclude anaemia, thyroid function tests) and vaginal swabs (if infection is suspected), as well as a smear and pregnancy tests if required. Other investigations are done in the secondary care setting (see below).

Primary and secondary dysmenorrhoea

NICE guidelines suggest a secondary cause of dysmenorrhoea should be excluded before a diagnosis of primary dysmenorrhoea is considered (NICE, 2018), although a thorough history will be useful in guiding clinicians towards a possible cause of the woman's symptoms. A physical examination is usually normal in women with primary dysmenorrhoea (Nagy and Khan, 2022). An ultrasound scan may be useful to rule out endometriosis or fibroids when determining the underlying cause of the woman's dysmenorrhoea, if the diagnosis is in doubt, and to help determine whether the diagnosis is primary or secondary in origin.

Menorrhagia

Hospital investigation of menorrhagia may include several tests (*Table 4*).

Red Flags

- Investigations requested in primary care are limited to bloods, swabs to exclude vaginal infection, smear and pregnancy tests
- Ultrasound scan may be useful to diagnose fibroids or endometriosis which may indicate secondary dysmenorrhoea
- Investigations for menorrhagia will be dependent on the suspected cause and may include hysteroscopy, transvaginal ultrasound scan, or pelvic ultrasound.

Table 3: Red flags in women with menorrhagia (NICE, 2018)

Red flags	Additional information
Pelvic mass or abdominal mass	■ If uterine fibroids are not the underlying cause, a mass may indicate malignancy
Ascites	■ May indicate malignancy
Persistent postcoital bleeding or intermenstrual bleeding	■ If there are no associated symptoms of PID (e.g. abnormal vaginal or cervical discharge), pelvic pain or dyspareunia, may suggest possible cervical or endometrial cancer of endometrial polyps

Table 4: Secondary care investigation of menorrhagia (NICE, 2018)

Investigation	Additional information
Hysteroscopy	■ Useful for the evaluation of endometrial pathology, fibroids and polyps
Endometrial biopsy	■ Can be done at the time of hysteroscopy in women suspected of endometrial pathology
Pelvic ultrasound	■ May be needed if a mass is found on examination, or the uterus is palpable, or in obese women where examination can be difficult
Transvaginal ultrasound	■ May be undertaken to exclude adenomyosis (*Table 2*) in women who are experiencing severe period pain in addition to menorrhagia and have a bulky or tender uterus on examination

TREATMENT AND MANAGEMENT

Primary dysmenorrhoea

The woman's preferences should be considered and her choice of treatment will be affected by the degree of pain, and whether she wishes to conceive of not. If she wishes to have the option of conception, NICE guidelines suggest analgesia (NICE, 2018). Anti-inflammatory medications such as ibuprofen, naproxen or mefenamic acid, or tranexamic acid, ease the pain in seven out of 10 cases and achieve their effect by blocking prostaglandins, thought to be instrumental in causing the pain (McKechnie, 2023). Paracetamol can be added if needed. If planning a pregnancy is not an option, the combined oral contraceptive pill (COCP) or progesterone-only pill (POP) can be tried. Nurse prescribers are advised to check the BNF for contraindications before prescribing any of the above.

Secondary dysmenorrhoea

Treatment will depend on the underlying cause. Fibroids and endometriosis may need referral to a gynaecologist. Patients with PID may need referral to a specialist genitourinary clinic for treatment and contact tracing if needed.

Menorrhagia

Women with menorrhagia have several treatment options, choice being dependent on the woman's preferences and the underlying cause, if one has been identified. For example, many women take both anti-inflammatory pain killers and tranexamic acid for a few days during each period with good effect (Vincent, 2023)

Other options are as follows (NICE, 2023):

- Mirena coil: no underlying pathology or small fibroids (<3cm in diameter). A levonorgestrel IUD (Mirena coil) is usually effective in reducing the blood flow and pain
- Hormonal pill options: COCP is effective in reducing pain and reduces bleeding in most women. Progestogen contraceptives include the POP, injection, and implant. The contraceptive injection and implant reduce heavy periods and up to half of women on the contraceptive injection have no periods at all after one year of use. The POP also reduces bleeding, with many women having no bleeding when using this method (Vincent, 2023)
- Other hormonal treatments such as gonadotrophin-releasing hormone (GnRH), e.g. Zoladex®,

may be used by specialists in secondary care, but their use is limited due to possible adverse effects
- Surgery: this may be an option if all other options have failed to help or are unsuitable. Endometrial ablation destroys the lining of the womb, but its effects are not permanent and the procedure may therefore need to be repeated
- Hysterectomy: this is the final option, but is less commonly performed these days since ablation became an option.

COMPLICATIONS

Primary dysmenorrhoea has no underlying cause so complications relate to its effect on the woman's health and wellbeing and its impact on her ability to carry on with activities of daily living.

Secondary dysmenorrhoea complications vary according to the underlying causative condition, but may include infertility, pelvic organ prolapse, and anaemia (Bernardi et al, 2017).

In women suffering with menorrhagia, in addition to iron deficiency anaemia, the monthly appearance of excessively heavy periods has a significant impact on personal, social, family, and work life and therefore reduces quality of life for those experiencing this distressing problem (Gokyildiz et al, 2013). Apgar et al (2007) found that women with menorrhagia described the dysmenorrhoea, impact on their mood, and loss or reduction of daily activities of living as being more severe problems than the actual volume of bleeding.

CONCLUSION

Abnormal menstrual bleeding patterns are distressing for any woman affected and are a frequent reason for seeking advice in primary care. Establishing the underlying cause can be a complicated process and requires a thorough history and examination, as well as investigation, if the correct treatment is to be offered.

The variable symptoms and additional impact that bleeding abnormalities have on women's quality of life and wellbeing makes assessment of patients a challenge for clinicians. It is hoped that this article has helped nurses and non-medical prescribers gain knowledge and confidence in the conditions discussed, so that they can help women to get earlier diagnosis and treatment, with the aim of improving outcomes and quality of life. GPN

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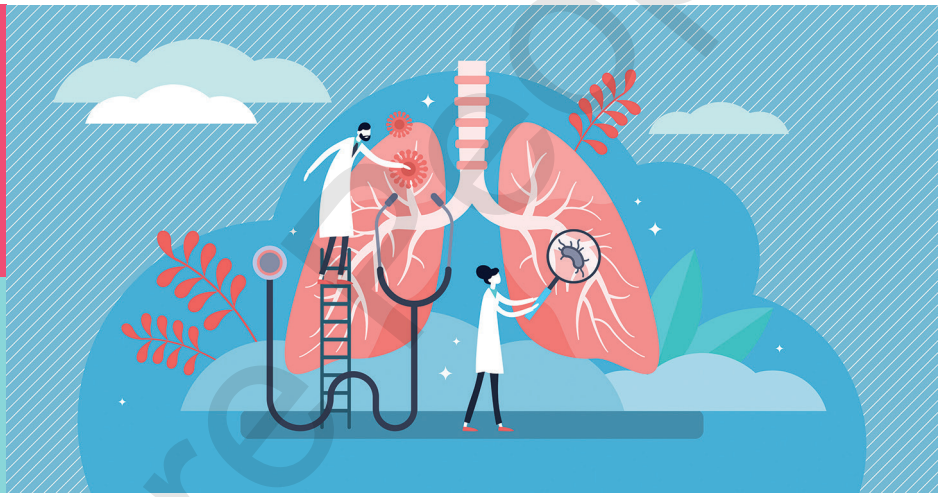
Introducing diagnostic spirometry safely into the community setting

Diagnostic spirometry is key to supporting a clinical diagnosis of lung impairment. As a result of Covid-19, spirometry services in primary care were all but cancelled. There was much debate about the potential risks associated with spirometry as a potential aerosol generated procedure (AGP); clarity was needed for patients and staff. The evidence is now clearer, spirometry is not an AGP, although spirometry-associated cough has the potential to release airborne particles in the air, associated with an increased risk of transmission of harmful viruses such as Covid, influenza and the common cold. This article explores recent evidence to support the safe re-introduction of quality-assured spirometry in primary care, looking at how risks can be mitigated to try to readdress the backlog of diagnostic spirometry thought to be in the region of 200–250 patents per 500,00 population. Spirometry is important to reduce health inequalities for patients yet to have a diagnosis of lung disease.

KEY WORDS:

- Spirometry
- Preparation
- Patient
- Education and training



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On behalf of Education for Health

The potential repercussions of an incorrect respiratory condition diagnosis can make their way through a stratum of different factors; people, organisational, environmental and emotional. At the centre is the patient, who may be on a pathway of missed opportunities.

In the author's clinical experience, performing quality-assured spirometry is not difficult if the logical steps are followed in the correct order. The Association for Respiratory Technology and Physiology (ARTP) published a statement on pulmonary function testing (ARTP, 2020), which focuses on the standards to be adopted across all providers of spirometry to ensure a quality-assured approach to realise best practice. In support of this document, ARTP has published the Spirometry Standards Document (v4, 2023a) defining the standards expected by the ARTP from training providers.

> **"The World Health Organization (WHO) has identified chronic respiratory disease as one of the four leading non-communicable diseases worldwide, along with cardiovascular disease, diabetes and cancer... .**

This article covers the steps to consider for the safe re-introduction of spirometry.

RESPIRATORY DISEASE STRATEGIC FOCUS

Respiratory conditions are a major contributor to ill health, disability and mortality. The World Health Organization (WHO) has identified chronic respiratory disease as one of the four leading non-communicable diseases worldwide, along with cardiovascular disease, diabetes and cancer (WHO, no date). In 2021, the Scottish Government published its 'respiratory care action plan 2021–2026' to set a vision to drive improvement in the prevention, diagnosis, care, treatment and support for people living with respiratory conditions (Scottish Government, 2021). NHS England also acknowledged the impact of respiratory ill health in the 'NHS Long-term Plan' (NHS England, 2019), framing its improvement priorities to include respiratory disease. In this plan, there was a drive to reduce variation in the quality of spirometry, promising more staff in primary care would be trained and accredited to provide the specialist input required to improve standards.

A conservative estimate of the backlog for diagnostic spirometry is in the region of 200–250 patients per 500,000 population (ARTP and

Primary Care Respiratory Society [PCRS], 2021). The ARTP and PCRS document offers a practical perspective on how safely to re-introduce diagnostic spirometry (ARTP and PCRS, 2021). While we have moved to a post-Covid period, standards still need to be maintained and consideration given to room air changes, the choice of personal protective equipment (PPE), cleaning of room and equipment, the opportunities to reduce risk by considering vaccination status of staff and patients, and the use of lateral flow tests. Examining each of these matters individually should promote quality assurance and regulation of service for those working in spirometry services.

WHAT IS SPIROMETRY?

Spirometry is a non-invasive test measuring air flow and how quickly patients can exhale. In pulmonary function laboratories, inspiratory flow will also be measured along with other procedures to determine health and disease. Community spirometry concentrates on exhaled air. Quality-assured spirometry can evaluate several conditions; however, the emphasis is on quality. It is the recommended objective test performed to identify abnormalities in lung volumes and air flow (National Institute for Health and Care Excellence [NICE], 2019; Global Initiative for Chronic Obstructive Lung Disease [GOLD], 2023).

There is a seemingly endless list of spirometry indices available for clinicians to consider when performing spirometry interpretation. The sheer number on many spirometry reports can, in the author's clinical experience, generate both confusion and intimidation. However, there are only four numeric values that are required to interpret spirometry in primary care (ARTP, 2020):

- Forced vital capacity (FVC): volume of lungs from full inspiration to forced maximal expiration, blowing out as fast as possible
- Vital capacity (VC): maximal amount of air exhaled steadily from full inspiration to maximal expiration (not time-dependent) (VC conventionally referred to as relaxed vital capacity [RVC])
- Forced expiratory volume in one second (FEV1): volume of air expelled in the first second of a forced expiration
- Ratio: how much of the air represented by the FEV1 as a percentage of the VC.

PREPARATION FOR SPIROMETRY

Preparation of the spirometer is essential for quality assurance. Any technical issues can mean that the results do not represent the subject's clinical condition. Factors to consider for quality-assured spirometry include (ARTP, 2020):

1. Storage of the spirometer: ambient temperature should be recorded; the calibration syringe must be kept at room temperature; temperature is an important variable. Spirometry should only be performed at ambient temperatures, ideally between 20°C and 25°C
2. Inspection of spirometer and 3 litre calibration syringe looking for any damage. A dropped or damaged syringe should be considered out of calibration until it is checked.
3. Calibration verification check: calibration is the procedure for establishing the relationship between sensor determined values of flow or volume and the actual flow or volume. This is carried out by the manufacturer and should be re-certified on an annual basis; certificates of calibration should be obtained. A verification check is different from calibration and is the procedure used to validate that the device is within calibration limits, e.g. ±3% of true value, i.e. 2.91–3.09. Verification check across three flow rates between 2 and 12L/s: low flow, medium flow and high flow rates, is documented. Calibration checks (verification) should be performed:
   - Before each clinic/session or after every tenth patient, whichever comes first
   - Repeated every four hours of use where possible across the volume range
   - Where there is an increase in room temperature >2°C, recalibration should take place
   - Spirometer is being switched on and off for transportation between rooms.

   If a device fails its calibration check, a new calibration procedure or equipment maintenance are required. For calibration verification, the minimum requirements are (American Thoracic Society (ATS) 2019; ARTP 2020):
   - Calibration/verification log
   - Record of any repairs or other alterations that return the syringe to acceptable operation
   - Record of computer software and hardware updates or changes
   - Record of dates equipment is changed or updated.
4. Physiological control checks: biological quality control (BioQC) improves measurement quality. Obtain 10 RVC, FVC, FEV1 and peak expiratory flow (PEF) measurements over 10 sessions on consecutive working days. Record the lower, upper and mean values for each manoeuvre, this establishes the upper and lower limits for each index within which all subsequent values should fall +/- 5%. On subsequent weekly measurements of the BioQC check, obtain measurements for each index and check these are within the previously defined limits. At least once every two years, the 10 reference measurements need to be repeated to generate new limits of agreement.
5. Covid vaccinations have been delivered to much of the population and most healthcare providers. Moving forward, diagnostic spirometry needs to be restored safely in primary care. The PCRS confirms spirometry should be reinstated as part of a diagnostic pathway for breathlessness (PCRS, 2020). To make this happen, there must be a clear obligation of responsibility, whether this is at practice level or a more strategic focus. We often hear about aerosol-generated procedures (AGPs). Spirometry

Table 1: Infection prevention and control (IPC) (adapted from ARTP standard operating procedure [SOP], 2023b)

■ All tests must be performed using a single-use antibacterial antiviral filter: contact your health board or integrated care system (ICS) for details of local supplier, or alternatively, the manufacturer of your spirometer
■ The spirometer used must be cleaned according to local infection control policy and manufacturer instructions
■ Surface cleaning materials should be used and all areas that have come into contact with the patient (flow head, spirometer orifice, etc) should be cleaned in line with manufacturer and local IPC recommendations
■ Appropriate use of personal protective equipment (PPE) as per local infection prevention and control protocol recommended guidance. Healthcare professionals and patients should wash their hands before and after the test, using either hand gel or soap and water
■ ARTP (2023) recommend 'Spirometry should be conducted in a well-ventilated room to maximise airflow. A minimum of six air changes per hour in the room is recommended. There are high efficiency particulate absorbing (HEPA) filters available which can filter most particulate matter, including Covid-19 particles. These can be purchased and, depending on the number of air changes in the room, can be set to clear the air within 15 minutes. This is not essential but depending on local protocols can be utilised to help reduce infection risk'
■ Lateral flow testing of patients prior to lung function may reduce risks, but other infections are also possible (e.g. influenza)

is not considered to be an AGP (Scottish Government, 2021). However, spirometry-associated cough has the potential to generate aerosol droplets necessitating a mitigation strategy. The ARTP released a document in December 2022 outlining the importance of continuing with a risk management approach, updating their original 2021 guidance (ARTP, 2022). Infection prevention and control (IPC) measures remain an important part of risk management. Having addressed new evidence of what constitutes an AGP, this paper provides more clarity and specific advice for re-establishing spirometry, recognising IPC procedures will extend beyond Covid-19, such as for influenza and cold viruses too.

As said, spirometry is not classified as an AGP. However, coughing during or after spirometry is a leading cause of viral spread, whether Covid-19, influenza or the common cold (ARTP, 2022), and patients coughing history does not predict the absence of coughing (Kimberley et al, 2021). In practical terms, it is unlikely that spirometry would be performed in primary care for someone who was known to be infectious, as the screening for contraindications (ARTP, 2020) would have prompted a deferral of the procedure until the patient was well.

The ARTP and PCRS have jointly produced a document to support the safe re-introduction of spirometry (ARTP and PCRS, 2021). This document, developed by a task and finish group established by NHS England and the NHS Improvement Clinical Policy Unit, has been reviewed by several key players (e.g. Association of Respiratory Nurse Specialists [ARNS], ARTP, British Lung Foundation/Asthma UK Partnership, British Thoracic Society [BTS], Royal College of Nursing [RCN] and PCRS), lending weight to their legitimacy and authority. This document, updated in December 2022 in response to appeals from healthcare providers for more clarity on AGPs, confirms that the original message remains applicable, i.e. mitigating risks for the safe-reintroduction of spirometry, and offering new evidence and understanding on aerosol transmission (ARTP, 2022).

NHS England published phase 3 of the NHS response to the Covid-19 pandemic (NHS England, 2022). This document addressed many issues, including how Covid-19 exposed inequalities of health provision. This finding was also recognised by NHS Scotland in its 2021–2026 recovery plan, which identified that the pandemic not only exposed, but exacerbated, health and social inequalities (NHS Scotland, 2021). The ARTP and PCRS in their joint paper, developed by the task and finish group, suggested prioritising search criteria to find individual patients who need spirometry from the excessive backlog of suspected patients (ARTP and PCRS, 2021).

Indeed, a timely diagnosis of chronic obstructive pulmonary disease (COPD) is crucial if patients are to be given appropriate interventions to try to reduce the accelerated lung decline seen in susceptible smokers (GOLD, 2023) and to optimise pharmacological and non-pharmacological management. The ARTP and PCRS suggest uncovering patients who should be prioritised (ARTP and PCRS, 2021).

Clarity of search criteria will help to improve search outcomes; highlighting patients who may need interventions to improve health outcomes and quality of life — thus rebalancing health inequalities to support the most at need. Search criteria include (ARTP and PCRS, 2021):

- Suspected COPD
- Unexplained breathlessness
- Intermediate probability of asthma
- New initiation of inhaled medication
- New documentation of respiratory symptoms
- Coded 'awaiting spirometry' etc.

PATIENT PREPARATION

Robust protocols should be available to ensure that healthcare professionals perform optimal spirometry examinations, while also encouraging the best performance from the patient. A significant source of variability can be the patient (ARTP, 2020), which pre-test preparation can minimise. Thus, before the procedure takes place, it is important to consider the following.

Type of spirometry

Pre-test preparation and instruction

Table 2: Withholding inhalers (Graham et al, 2019)

Bronchodilator type	Example	Withholding time
SABA	Salbutamol	4–6 hours
SAMA	Ipratropium	12 hours
LABA	Formoterol or salmeterol	24 hours
Ultra LABA	Indacaterol, vilanterol, olodaterol	36 hours
LAMA	Tiotropium, umeclidinium, aclidinium, glycopyrronium	36–48 hours

will centre on the type of spirometry the referrer has requested:

- Baseline or screening spirometry: to investigate pulmonary function before a diagnosis has been established or health surveillance to protect employee's health (Health and Safety Executive [HSE], 2022).
- Post bronchodilator spirometry: investigative to demonstrate the persistence of airflow limitation seen in COPD (GOLD, 2023). Monitoring of disease control or disease trajectory, for instance, in diagnosed asthma or COPD
- Reversibility testing: to support the diagnosis of asthma (British Thoracic Society [BTS]/Scottish Intercollegiate Guidelines Network [SIGN], 2019), or to differentiate between different lung conditions, i.e. asthma and COPD, although this is rarely required (BTS, 2013).

Assess for contraindications

The majority of contraindications are relative and depend on a risk/benefit assessment (ARTP, 2023c). Caution is required for the following conditions:

- Haemoptysis of unknown origin: spirometry may worsen the underlying condition
- Pneumothorax: due to increase in intrathoracic and intraabdominal pressure
- Unstable cardiovascular status: due to increase in myocardial demand or changes in blood pressure
- Thoracic, abdominal or cerebral aneurysm: danger of rupture due to variation in thoracic pressure
- Recent eye surgery: due to intracranial/intraocular pressure
- Recent thoracic or abdominal surgery
- Acute illness: symptoms that might interfere with test results, such as nausea and vomiting.

Relative contraindications

Recommended wait times before lung function testing (ARTP, 2023b):

- Eye surgery — two to six weeks
- Unstable angina/angina attack — the use of sublingual GTN (glyceryl trinitrate) before testing
- Recent myocardial infarction (MI) — seven days
- Pneumothorax — three weeks
- Brain surgery — three to six weeks
- Abdominal/thoracic surgery — four weeks
- Vascular surgery — four to six weeks
- Nausea, vomiting, diarrhoea clear for 48 hours
- Middle ear infection — two weeks once treated
- Pulmonary embolism untreated — once treated with anticoagulants
- Haemoptysis of an unknown origin — rebook for two weeks
- Stroke — once treated with anticoagulants.

Absolute contraindications

In some instances there may be a greater risk to the patient by performing spirometry or pose a risk to others. Therefore, it is recommended that spirometry is avoided where possible in the following conditions (ARTP, 2023b):

- Active untreated tuberculosis (TB)
- Aneurysm aortic or cerebral >6cm or bulging
- Untreated pulmonary embolism.

Patient information

When advising patients, healthcare professionals should consider withholding inhalers. Patients should arrive on their usual medication, unless presenting for spirometry reversibility. *Table 2* outlines the decision for withholding inhalers.

EDUCATION, TRAINING AND ASSESSMENT

Spirometry should only be provided by appropriately trained healthcare practitioners who are certified and competent and confident in their role. The ARTP provides a national spirometry register which ensures that all healthcare staff have demonstrated a level of competence to perform quality-assured spirometry. Quality assurance and quality improvement are at the heart of healthcare provision. Attaining this level of competence, recognised nationally for its high standard, augments the clinical assessment of the patient. The ARTP offers different levels of certifications relevant to the role and responsibility of healthcare staff, namely:

- Performing and reporting adult (full): for those performing and reporting spirometry on adults
- Performing adult: for those who perform spirometry on adults
- Reporting adult (previously known as interpretation): for those who report spirometry test results on adults
- Performing and reporting adult and paediatric: for those performing and reporting spirometry on adults and children.

Further details are available on the ARTP website, including the timeline for completing the spirometry certificate.

Training organisations, such as Education for Health, support the process by providing teaching and tuition in preparation for applying for the ARTP certificate. They also offer a selection of courses for healthcare professionals who are involved in delivering spirometry services. The catalogue of courses represent:

- Spirometry interactive blended online learning package
- Spirometry interactive blended online learning package, including ARTP assessment access
- Spirometry refresher, including ARTP assessment access
- Spirometry update.

Detailed information on the content of the various spirometry

programmes of learning is available on the Education for Health website

CONCLUSION

The return of spirometry services in primary care remains a priority if we are to facilitate an accurate diagnosis of lung disease and put patients on appropriate management pathways. Restoration of safe diagnostic spirometry following appropriate risk assessment can mitigate health inequalities for people who are yet to have the diagnostic test which has, up to now, largely been denied.

Spirometry is a simple, non-invasive test which should be widely available. Performed to quality-assured standards, patients can expect to receive interventions to maximise their clinical outcomes.

Until all restrictions are lifted, or further guidance is published, risk mitigation is key. By adopting these simple pragmatic procedures for the safe reintroduction of spirometry services, patients will benefit from an equitable, quality-assured spirometry service. GPN

Declaration of interest: Education for Health associate; ARTP assessor.

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Key points

- Respiratory conditions are a major contributor to ill health, disability and mortality.
- Diagnostic spirometry is key to supporting a clinical diagnosis of lung impairment.
- Performing quality-assured spirometry is not difficult if the logical steps are followed in the correct order by appropriately trained practitioners who are certified and competent.

Measles: an unparalleled contagious threat

The measles vaccine represents a monumental achievement in modern medicine, effectively curtailing childhood mortality and morbidity on a global scale. However, recent trends in measles vaccine uptake present a concerning scenario, with declining rates posing a threat to the progress achieved in eradicating this highly contagious disease. This article delves into the pivotal role of the measles vaccine in safeguarding child health, exploring the reasons underlying vaccine hesitancy, including the controversial *Lancet* article, and discusses the additional impact of the Covid-19 pandemic on vaccine adoption. Drawing on global data from the World Health Organization (WHO) and Global Alliance for Vaccine and Immunisation (GAVI), this piece also assesses the consequences of dwindling measles, mumps, rubella (MMR) vaccine coverage on community well-being and offers strategies to combat vaccine hesitancy.

KEY WORDS:

- Measles
- Vaccination
- Vaccine hesitancy

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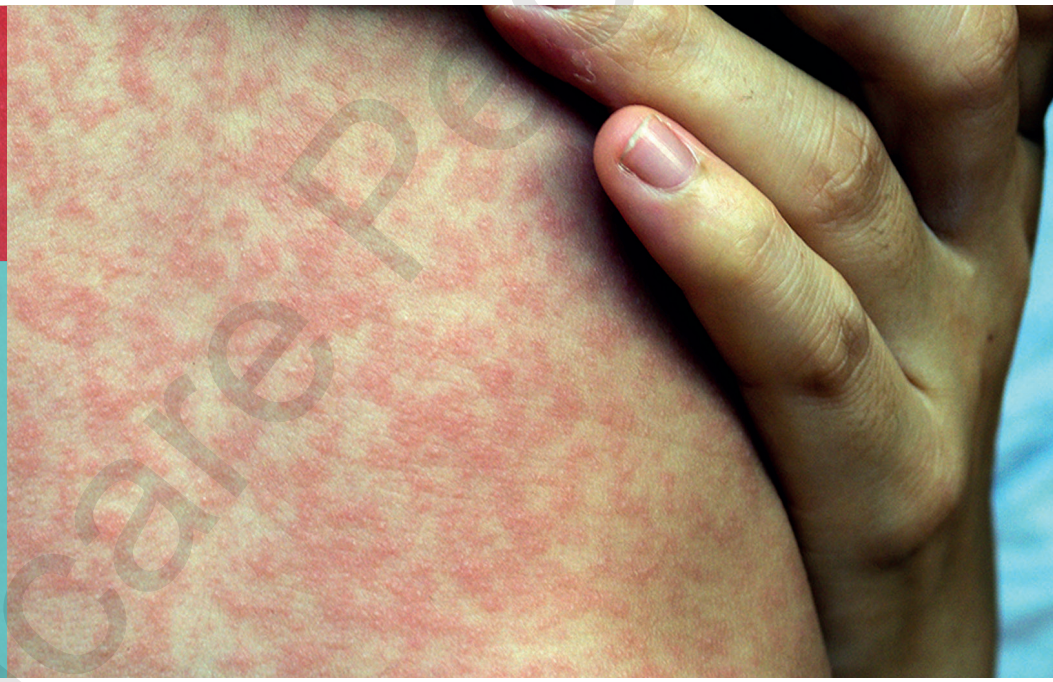

Described as humanity's most contagious affliction, measles transcends the transmission ease of diseases like influenza or even Ebola, as underscored by insights from Public Health England (PHE, 2019a). It can remain contagious in the air or on infected surfaces for up to two hours and can be transmitted by infected people for up to four days before and four days after the eruption of the rash (World Health Organization [WHO], 2023). The virus can affect individuals of all ages, from adults to children and infants, spreading through the inhalation of the countless minuscule droplets released when an infected person coughs or sneezes.

"The virus can affect individuals of all ages, from adults to children and infants, spreading through the inhalation of the countless minuscule droplets released when an infected person coughs or sneezes.

Measles, once known as 'first disease' (Patel, 2015), is caused by the measles virus (MeV). It primarily affects the respiratory system and can lead to a range of symptoms and complications. The disease is characterised by a red rash, which typically begins on the face and spreads to other parts of the body. Measles is most common in children, and although mild in most, it can be quite dangerous, particularly in populations with low vaccination rates or in areas with limited access to healthcare. While many individuals recover from measles without severe complications, the disease can lead to serious health issues, especially in vulnerable populations such as infants, young children, pregnant women, and individuals with compromised immune systems.

The dangers of measles include (PHE, 2019a):

- Complications: measles can lead to various complications, such as ear infections, pneumonia (lung infection), and encephalitis (inflammation of the brain). These complications can be severe and require medical intervention
- Hospitalisation: some individuals with measles may develop severe symptoms that require hospitalisation. This is more likely to occur in young children and adults
- Subacute sclerosing panencephalitis (SSPE): this is a rare but fatal complication of measles that can develop several years after the initial infection. SSPE affects the central nervous system and leads to progressive neurological deterioration
- Death: while death due to measles is relatively rare, it can occur, especially in areas with inadequate healthcare resources or in populations with compromised immune systems
- Spread to others: measles is highly contagious and infected individuals can easily spread the virus to others through coughing, sneezing, or even breathing. This puts unvaccinated individuals and those who are unable to receive the vaccine at risk
- Outbreaks: in communities with low vaccination rates, measles can cause outbreaks, leading to a higher number of cases and putting strain on healthcare systems.

The best way to prevent measles and its potential dangers is through vaccination (Moss, 2017). The measles vaccine, usually administered as part of the MMR vaccine (measles, mumps, rubella), is safe and highly effective in preventing measles infection (University of Oxford, 2023). High vaccination coverage not only protects individuals who are vaccinated, but also contributes to herd immunity, which helps prevent the spread of the disease within the community and protects those who cannot be vaccinated, i.e. individuals with certain medical conditions, such as immunosuppressed individuals (PHE, 2019a).

TREATMENT

With no specific antiviral treatment available, most people with measles are treated palliatively with fluid and nutritional support. The WHO (2023) recommends use of oral rehydration solution to replace fluid and lost electrolytes. Where secondary infections have occurred, such as in the eyes or ears, antibiotics can be prescribed. The WHO (2023) also recommends the administration of vitamin A to prevent eye damage and blindness that can occur with measles.

CRUCIAL ROLE OF MEASLES VACCINE IN CHILD HEALTH

Despite medical advancements, measles continues to cast a tragic shadow over child mortality globally. Its persistence underscores the urgency of robust vaccination efforts. The emergence of the measles vaccine in 1968 has revolutionised child health by mitigating the dire consequences associated with measles infections. It serves as a pivotal safeguard against grave complications like pneumonia, encephalitis, and fatalities, especially within vulnerable populations such as infants and undernourished children (Holzmann et al, 2016). The introduction of the measles vaccine has been a crucial facet in reducing measles worldwide, safely and effectively reducing its presence over the last 60 years at minimal expense (Mina, 2017). Furthermore, as it is often combined with the mumps and rubella vaccines, these diseases have been effectively and safely targeted at the same time.

The vaccine's effectiveness is highlighted by a remarkable 80% reduction in global measles-related deaths between 2000 and 2019, exemplifying its indispensable contribution to the preservation of children's lives (Mina, 2017). The period before 1968 was characterised by a high burden of measles cases. The annual incidence of measles ranged widely, with reported cases numbering between 160,000 and 800,000 each year (UK Health Security agency [UKHSA], 2018). Alarmingly, the disease led to the unfortunate loss of approximately 100 lives annually due to acute measles-related complications (UKHSA, 2018).

A significant achievement occurred in 2016 when the UK reached the status of measles elimination (Gov.UK, 2022). This designation signifies that indigenous transmission of measles within the country had been interrupted, marking a significant accomplishment in the fight against the disease. However, it is important to note that elimination does not equate to complete eradication, as sporadic cases may still occur due to importation of the virus from other countries, and hence an effective vaccination programme is still essential, along with rapid response to any outbreaks identified (UKHSA, 2018).

In the author's clinical opinion, the accomplishments achieved through the introduction and sustained use of the MMR vaccine demonstrate the huge value of vaccination in preventing the spread of infectious diseases and safeguarding public health.

WHAT HAPPENED TO MMR UPTAKE?

Although the measles vaccine has been a cornerstone of child health, significantly reducing mortality and morbidity globally, there has been a concerning decline in measles vaccine uptake, posing a threat to the progress made in combatting this highly contagious disease. For the vaccine to be most effective, it is recommended that two vaccine doses are given, since immunity from one dose may not be sufficient for all children. However, the WHO (2023) reports that in 2021, only 71% of children received both doses of measles vaccine, and about 81% of children worldwide received one dose of measles vaccine by the age of one, the lowest since 2008. This equates to approximately 25 million children worldwide missing at least one dose of the vaccine in 2021, with half a million children in the UK remaining unvaccinated

between 2010–2017. When it is considered that 95% vaccine uptake is needed for the spread of measles to be prevented (WHO, 2020), it is no wonder that measles is once again on the rise.

In 2019, the USA grappled with its most significant measles outbreak in a quarter of a century, underscoring the re-emergence of this once-contained disease (Abbasi, 2023). The resurgence of measles in the US raised alarm bells, as the disease had previously been brought under control through widespread vaccination efforts. The fact that the US witnessed its largest measles outbreak in 25 years (Centers for Disease Control and Prevention [CDC], 2019) serves as a stark reminder of the importance of high vaccine coverage to prevent the resurgence of vaccine-preventable diseases.

Similarly, the UK has also been dealing with outbreaks of measles. England recorded a staggering 913 confirmed cases between 1 January, 2018 and 31 October, 2018 — significantly higher than the 259 cases in the entirety of 2017. More recently, in the first part of 2023, 49 cases were recorded, mostly in London, compared to 54 cases in the whole of 2022. This spike is attributed to outbreaks linked to travel, particularly among adolescents and young adults who missed the MMR vaccine in their formative years, despite the earlier achieved measles-free status of the UK as described earlier (Moten et al, 2018).

The confluence of factors such as vaccine hesitancy, misinformation, and gaps in healthcare access has contributed to suboptimal vaccine coverage rates (Holzmann et al, 2016). Added to this, the Covid-19 pandemic and subsequent lockdowns meant many people failed to obtain vaccinations. Reasons for this are not established, but possibly due to assumption that vaccination clinics were not running (clinics continued throughout in the UK), fear of attending surgeries, or vaccine hesitancy perpetuated by misinformation about the Covid vaccine. In the author's clinical experience, there has been a notable increase in the number of parents declining vaccines since the pandemic. The resurgence of measles cases in both the US and the UK underscores the interconnectedness of global health challenges and the importance of addressing vaccine hesitancy on a worldwide scale.

“The confluence of factors such as vaccine hesitancy, misinformation, and gaps in healthcare access has contributed to suboptimal vaccine coverage rates. Added to this, the Covid-19 pandemic and subsequent lockdowns meant many people failed to obtain vaccinations.

THE WAKEFIELD EFFECT

The intricate landscape of vaccine hesitancy, which thrives on apprehensions surrounding vaccine safety, constitutes a formidable obstacle to public health. The ignominious *Lancet* article authored by Andrew Wakefield in 1998 falsely linking the MMR vaccine to autism and inflammatory bowel disease remains a stark example of misinformation's pernicious impact. This erroneous association, founded on flawed methodology and ethical violations, triggered widespread panic, sowing seeds of mistrust in vaccines that endure despite the article's subsequent debunking. The ramifications of this paper were profound, leading to a significant decline in MMR vaccine acceptance and uptake in various parts of the world. The media played a significant role in amplifying the impact of the *Lancet* paper. The sensational coverage created a climate of panic and distrust, with headlines that often exaggerated the study's findings. Despite the paper being discredited and retracted by *The Lancet* in 2010, the seeds of doubt had already been sown, leading to a long-lasting impact on public perceptions. The enduring sway of such misinformation underscores the fragility of public trust in vaccination programmes.

WHAT CAN BE DONE?

In the author's clinical opinion, efforts to reverse these trends require a concerted approach, encompassing robust public health campaigns, accurate dissemination of information, increased accessibility to vaccines, and targeted interventions in communities with low vaccine coverage rates. Recognising the importance of vaccines as a cornerstone of public health, initiatives must continue to foster vaccine confidence and prioritise the protection of vulnerable populations against preventable diseases like measles.

In response to the decline in uptake, the WHO and global stakeholders set out the measles and rubella strategic framework 2021–2023 to address each global region's targets for delivering vaccine programmes (WHO, 2020). It uses measles as a benchmark for the healthcare system's ability to deliver essential childhood vaccines. The framework sets out seven core strategic priorities for achieving and sustaining the goals of measles and rubella elimination, including vaccine coverage, equity of access and supply and sustainability.

Globally, it is estimated that around 56 million deaths were prevented through the implementation of the measles and rubella initiative in 2000–2021 (WHO, 2023), mostly in the African continent and Gavi (the vaccine alliance) supported countries, so the benefit of such a strategy is clear. This is reflected in the UK measles and rubella elimination strategy (PHE, 2019b), although currently targets are not being met with MMRI (first dose) given at one year of age down to 89%, and MMRII

(second dose) given at pre-school age at 85% (UKHSA, 2023).

The precarious nature of progress demands continuous commitment, as painstakingly achieved gains can be swiftly eroded. In areas where children remain unvaccinated, outbreaks become a stark reality. Drawing from present patterns of measles vaccination rates and the prevalence of the disease, the WHO Strategic Advisory Group of Experts on Immunization (SAGE) has reached the sobering conclusion that the goal of measles elimination faces imminent jeopardy (WHO, 2022). This conclusion is underscored by the resurgence of the disease in numerous countries that were on the brink of achieving or had already achieved elimination status. As such, it is incumbent on all practitioners working in primary care to boost vaccination uptake at every opportunity to prevent the dire consequences of the disease. GPN

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Revalidation Alert

Having read this article, reflect on:

- Your knowledge of the dangers of measles
- The role of measles vaccine in child health
- The accomplishments achieved through the introduction and sustained use of the MMR vaccine
- How you can boost vaccination uptake at every opportunity.

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

Shingles in the UK and the new vaccination programme

Shingles infection remains a risk in the UK for those who are immunocompetent or immunocompromised. One in five people in the UK will contract shingles in their lifetime and the risks of a more severe illness and longer term sequelae increase with age (NHS England, 2023). Uptake of the vaccine has been generally poor since it was first introduced in 2013–2014 (UK Health Security Agency [UKHSA], 2023a). Reasons for this may include an opinion that shingles is not severe, or a lack of information that a free vaccine is available, as well as poor accessibility and myths around the vaccine (Bricout et al, 2019). The change in the national immunisation programme for shingles from 1st September this year, with a more structured addition of additional groups up until 2030 and a good selection of vaccines and manageable intervals will hopefully help with this (UK Health Security Agency [UKHSA], 2023a).

KEY WORDS:

- Shingles
- Rash
- Post-herpetic neuralgia
- Immunocompromised
- New programme

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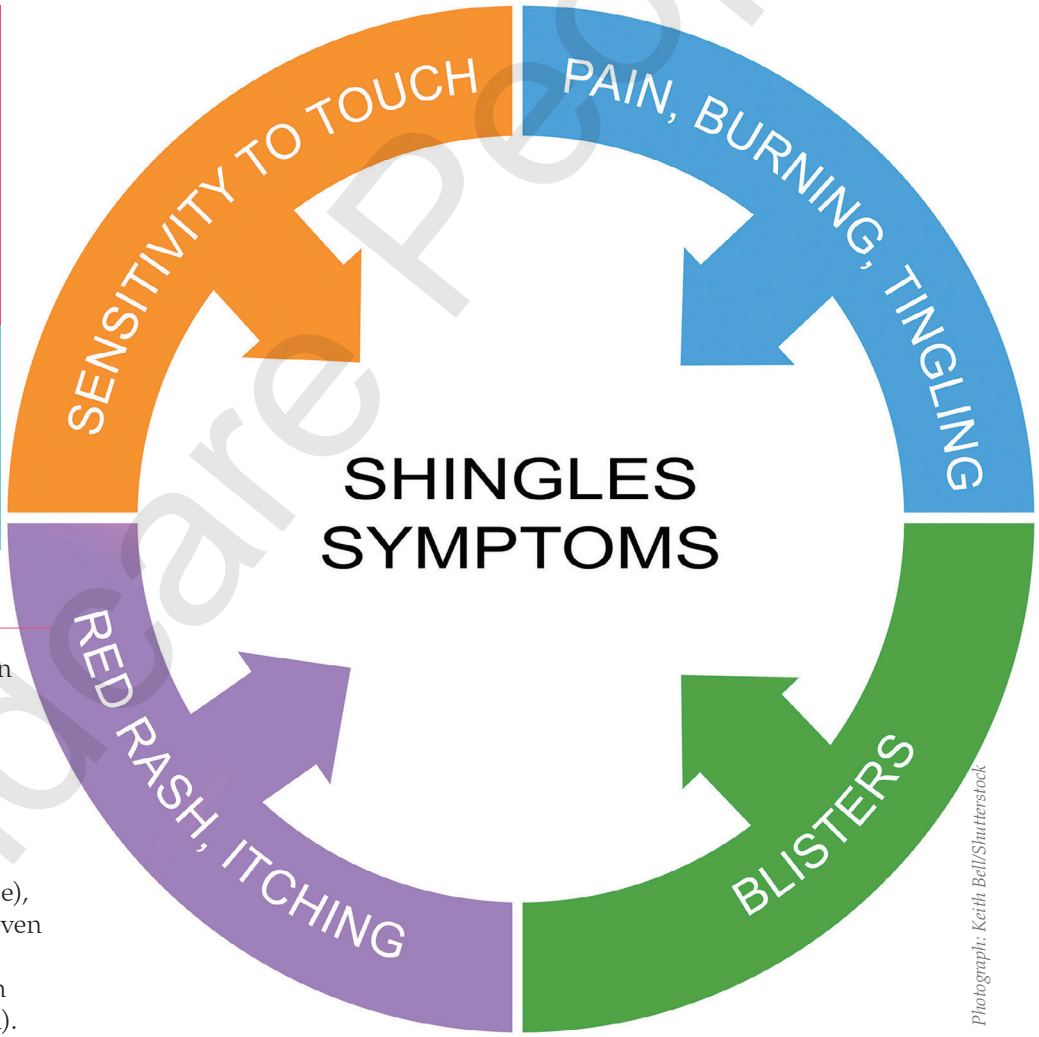

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WHAT IS SHINGLES?

After having chicken pox infection (varicella), the virus migrates into the nerve tissue in the vertebrae of the individual (NHS England, 2023). It sits here until reactivated — generally due to immunosenescence (age-related reduction in the immune response), being immunocompromised, or even bereavement — the mechanism is not absolutely clear (UK Health Security Agency [UKHSA], 2023a). Symptoms include:

- Rashes or blisters on one side of the body
- Burning or shooting pain
- Itching
- Fever
- Fatigue or headache.

On average, cases last three to five weeks. There may be a prodromal period (feeling of coming down with something), which may include fever, itching of the skin (where the rash may appear), headache, or a rash may suddenly appear with no warning. Treatment involves managing the symptoms to ensure that patients are able to continue with their activities of daily living and that any hard-to-manage symptoms are addressed. These may include concerns such as insufficient intake and output, pain, and immobility due to feeling unwell (National Institute for Health and Care Excellence [NICE], 2023).

TREATING THE SHINGLES RASH ON THE FACE OR HEAD (ZOSTER OPTHALMICUS)

This is a medical emergency and needs to be referred into the acute setting the same day. Facial paralysis,

damage to the ears, eyes and mouth, as well as long-term scarring are likely if appropriate treatment, such as intravenous (IV) antivirals and possibly steroids, is not started straight away. The severity of the infection on the face cannot be underestimated and referral must be made as soon as possible (NICE, 2023).

POST-HERPETIC NEURALGIA

Almost 30% of individuals develop a painful complication called post-herpetic neuralgia (PHN), which occurs when the reactivated virus causes damage to nerve fibres. This is persistent pain at the site of the shingles infection that carries on beyond the period of the rash. It usually lasts from three to six months, but can persist for longer. The often intractable pain can severely limit the ability to carry out daily activities, and PHN is therefore a debilitating condition that can significantly impair quality of life (NICE, 2023).

PHN does not respond to painkillers such as paracetamol or ibuprofen, so is extremely difficult to treat and may result in hospitalisation (NHS England, 2023). The very variable duration and type of pain makes it hard to treat, with standard analgesia being neuropathic in origin. Sometimes it will respond to medications like pregabalin or gabapentin, which are highly addictive and often unsuitable for older patients (British National Formulary [BNF], 2023). Occurrence increases with age and the condition is more likely and generally more severe in those over a certain age (UKHSA, 2023a).

VACCINATION PROGRAMME AND THE SHINGLES VACCINES

A shingles vaccine has been used in England for 10 years, since September 2013. In the first five years since the vaccine was introduced in England, there were 45,000 fewer GP consultations and 1,840 fewer hospitalisations for shingles and PHN (UKHSA, 2023a). The vaccine is one of the best ways to prevent the illness (NHS England, 2023), as it significantly reduces people's chance of developing shingles. If they do go on to have shingles, the symptoms are likely to be milder and the illness shorter than if they had not had the vaccination (UKHSA, 2023a).

All eligible patients should be offered the shingles vaccination by their GP all year round, although it can be offered at the same time as seasonal vaccines, such as for influenza. To increase uptake, from 1st September 2023, practices will be required to have a call/recall system in place. The vaccine can be given at the same time as other vaccines for which the patient is eligible, such as pneumococcal, Covid and the influenza vaccines, if it is clinically acceptable and the patient consents (UKHSA, 2023b).

In 2019, the Joint Committee of Vaccination and Immunisation (JCVI) in the UK recommended the replacement of Zostavax® (one dose, live vaccine) with Shingrix® (two dose, non-live vaccine) and the expansion of the age groups for the shingles vaccination programme. There are different intervals for immunosuppressed and immunocompetent patients (*Figure 1*; NHS England, 2023). Zostavax is still being used in certain groups until stocks are depleted. The JCVI recognised that there may be more clinical benefit from starting shingles vaccinations at a lower age, with modelling indicating that a greater number of cases would be prevented with vaccination at 60 years for those who are immunocompetent and 50 years for those who are immunosuppressed. Hence the changes from 1st September 2023 (NHS England, 2023).

All those newly eligible for the shingles vaccine will get two doses of Shingrix:

- At least eight weeks to six months apart for immunosuppressed patients
- Six to 12 months for immunocompetent patients

(NHS England, 2023).

Zostavax will only be given to those who were previously eligible for the shingles vaccine until stocks deplete (these will be ordered in the usual way from Immform), after which, this group should be offered Shingrix. Those who are immunosuppressed will be able to receive the shingles vaccine from the age of 50 (50 years old on or after 1st

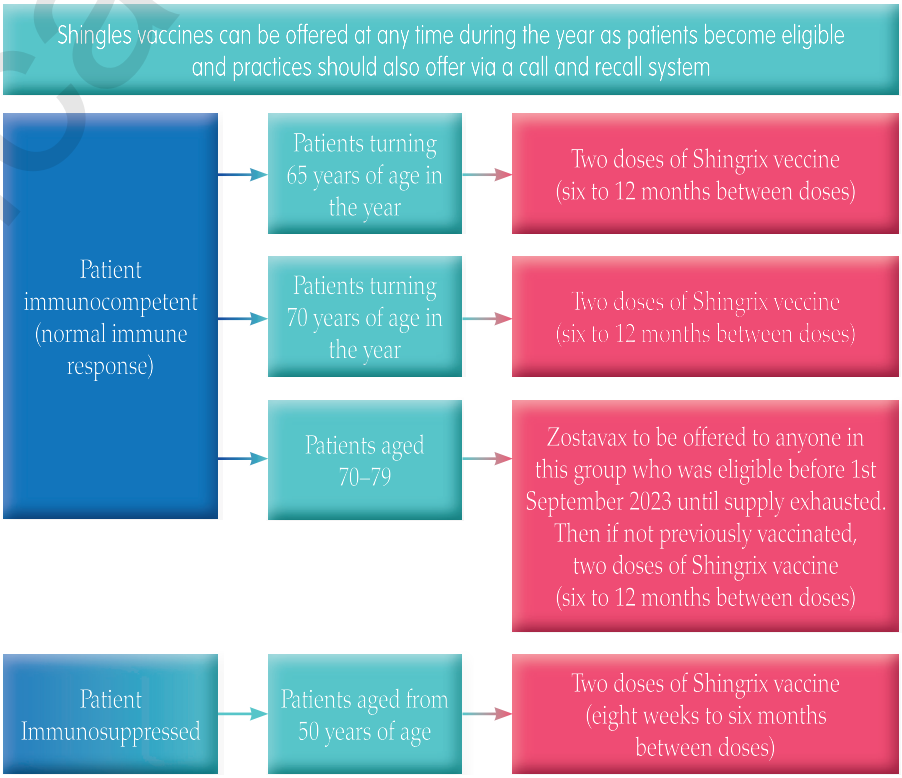

FIGURE 1.
Changes to the shingles programme. Adapted from NHS England, 2023.

September 2023), instead of 70, with no upper age limit. Those who are immunocompetent will be offered the Shingrix vaccine from 60 years of age in a phased implementation over a 10-year period starting with those turning 65 and 70 years of age this year. There is an upper age limit of 79 years old for receiving the vaccine. It is possible to have Shingrix at 80 years of age as long as it is part of the two-dose schedule (UKHSA, 2023a)

Scenario (adapted from NHS England, 2023)

If you are immunocompetent, from 1st September 2023, as you turn 65 or 70, you will become eligible to get the shingles vaccine from your birthday. You will not lose your eligibility and will be able to get the vaccine at any time up until you turn 80. If you turn 65 before 1st September 2023, you will have to wait until you turn 70 to become eligible for the shingles vaccine. If you are immunocompromised, from 1st September 2023, if you are aged 50+ you will be able to get the shingles vaccine and there is no upper age limit to the vaccine for you (NHS England, 2023).

VACCINATING SAFELY AND EFFECTIVELY

'Making every contact count' (NHS England, 2017) is reflected in the recommendation that co-administration of vaccines is encouraged this year — if there is sufficient time, clinical ability and patient consent, making sure that patients have all of the vaccines for which they are eligible is timesaving, safe and effective. Furthermore, this is often far more convenient for the patient — particularly the elderly who may find it hard to attend clinics. Indeed, accessibility is considered one of the key elements for improving uptake (Bricout et al, 2019).

MEDICO-LEGAL ISSUES

Documentation that is entered contemporaneously and is correctly coded is essential for inclusivity and accuracy. Capturing the correct data helps to protect patients, form future policy, and ensures that patients are managed appropriately. Gaining consent before giving vaccines is mandatory and, if the patient does not have the capacity to give consent, someone who does needs to be their advocate, e.g. those with lasting power of attorney for health and welfare (UKHSA, 2023b).

Crown indemnity is the most usual medico-legal cover in general practice, but pharmacies and other clinical areas may use companies that provide additional medico-legal or separate legal cover. The vaccinator should make sure that they are competent, up to date (including basic life support and anaphylaxis), and working within the remit of their role for the indemnity to be valid. Healthcare professionals have a duty of care to their patients and for nurses it is part of the Nursing and Midwifery (NMC) *Code of professional conduct* (NMC, 2023). Using the correct medico-legal frameworks to supply and administer prescription-only medicines (such as vaccines) necessitates the use of patient group directions (PGDs) for the registered healthcare professional, and patient-specific directions for those unregistered (UKHSA, 2023c). PGDs provide a wealth of information and should be read and understood by all of those using the vaccine.

CONCLUSION

Shingles can be a serious illness, particularly in the elderly and those who are immunocompromised. Expansion of the shingles programme will help reduce the incidence of illness, as well as sequelae such as PHN and severe disease which require hospitalisation. Using all of the resources available, particularly the GP toolkit (NHS England, 2023), will help to ensure competency and knowledge of the programme. GPN

In brief....

Before 1st September this year, the Zostavax vaccine was offered as a one-dose schedule to those aged 70–79 years of age. Now, immunocompromised patients will be offered the Shingrix vaccine as a two-dose schedule (eight weeks to six months apart) from the age of 50 (50 on 1st September 2023), with no upper age limit. Shingrix vaccine will also be offered as a two-dose schedule (six to 12 months apart) to those turning 65 and 70 years from 1st September 2023. Those aged 70–79 who were eligible before 1st September 2023, will still be eligible for Zostavax until stocks are depleted, after which they will be offered Shingrix.

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Inhaler devices and the environment

An awareness of the impact of climate change has led to policies to reduce greenhouse gas emissions (GHGEs). The National Health Service (NHS) is the UK public sector's largest emitter of greenhouse gases, with a target to deliver a net zero NHS by 2050 (NHS, 2020). Pressurised metered dose inhalers (pMDIs), which use hydrofluoroalkanes (HFA) as the propellant, have been targeted as a perceived easy option to reduce the NHS carbon footprint of HFA, as alternative inhaler devices in the form of dry powder inhalers (DPIs) and soft mist inhalers (SMIs) which contain no propellant are readily available. Balancing the environmental impact while ensuring that the best option of inhaler device is provided for individual patients can lead to conflict and confusion for healthcare professionals while waiting for manufacturers to provide pMDI with propellants that are more environmentally friendly. This article discusses sustainability, from manufacture to disposal.

KEY WORDS:

- Inhalers
- Environmental implications
- Greenhouse gas emissions
- Diagnosis
- Interventions

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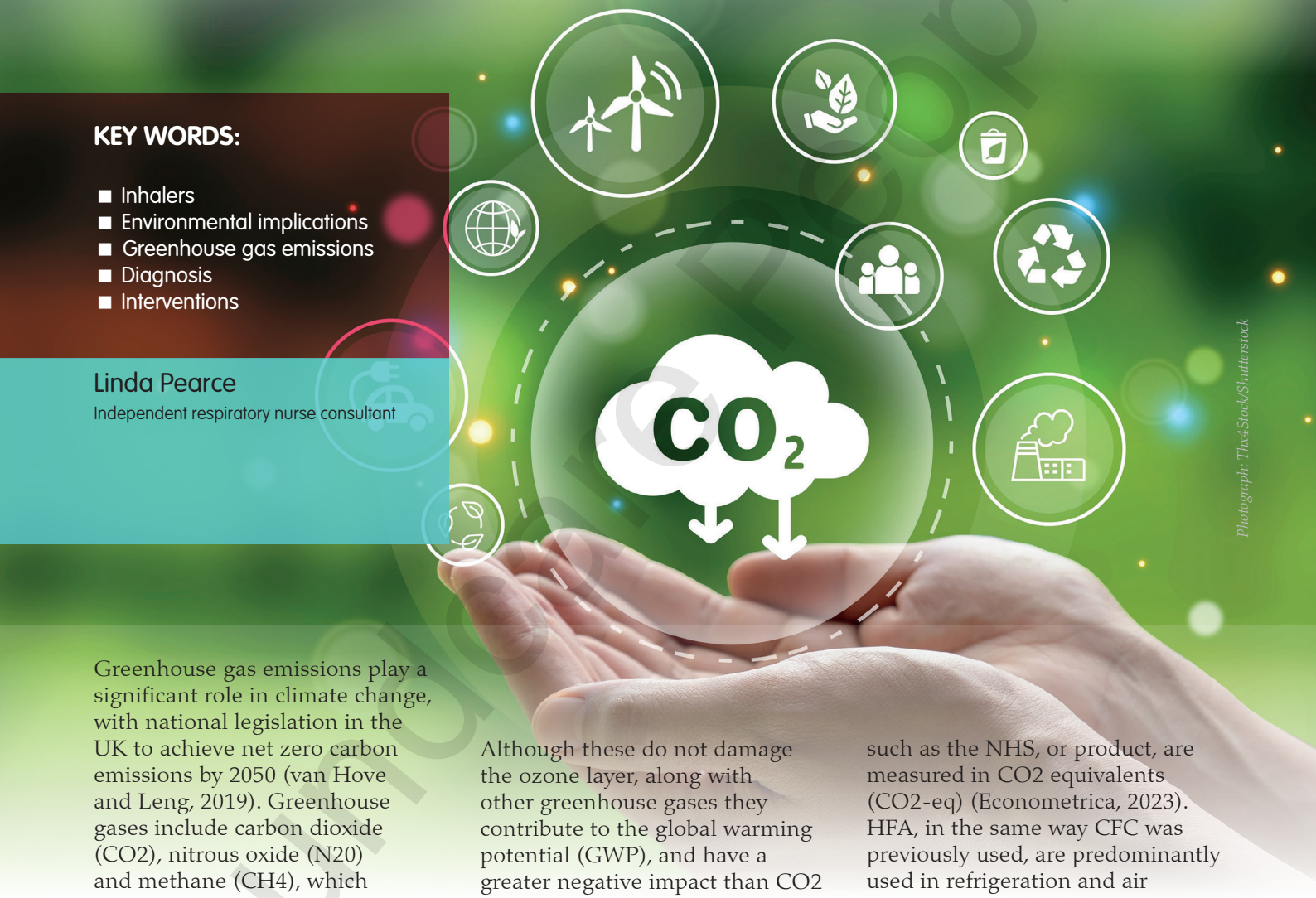

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Greenhouse gas emissions play a significant role in climate change, with national legislation in the UK to achieve net zero carbon emissions by 2050 (van Hove and Leng, 2019). Greenhouse gases include carbon dioxide (CO2), nitrous oxide (N20) and methane (CH4), which slow the release of heat energy into space thereby leading to global warming (Econometrica, 2023). The production of chlorofluorocarbons (CFCs), which were used in refrigeration, and pressurised metered dose inhalers (pMDIs), were discontinued worldwide in the 1990s to reduce the impact of depletion of the ozone layer (UN Environment Programme). CFC was replaced with hydrofluoroalkanes (HFA). Although these do not damage the ozone layer, along with other greenhouse gases they contribute to the global warming potential (GWP), and have a greater negative impact than CO2 (UK Progress on reducing F-gas Emissions, 2018).

International standards exist for organisations to assess their carbon footprint by measuring the environmental impact of products (Greenhouse Gas [GHG] Protocol, 2011; International Organization for Standardization [ISO], 14067:2018). To compare greenhouse gases, the carbon footprint of any organisation, such as the NHS, or product, are measured in CO2 equivalents (CO2-eq) (Econometrica, 2023). HFA, in the same way CFC was previously used, are predominantly used in refrigeration and air conditioning units, but also in pMDIs. As a consequence of concerns around global warming, the use of HFA is being phased out worldwide and being replaced with low GWP substances (European Parliament, 2022).

Medications for the management of asthma and chronic obstructive pulmonary disease (COPD) are dependent on the use of medicinal inhalers

to deliver medication directly to the lung. The pMDI is the most commonly prescribed type of inhaler in the UK, when compared with the rest of Europe where dry powder inhalers (DPIs) are predominantly used (Jeswani and Azapagic, 2019).

In the UK, the Environmental Audit Committee (EAC) set a target to reduce the GWP impact of respiratory medication by 50%, specifically targeting pMDIs (UK Progress on reducing F-gas Emissions, 2018). Medicines account for 25% of emissions and pMDIs, which contain HFA propellants, are responsible for approximately 3% of the total NHS total carbon footprint (NHS, 2020) — a small amount of the UK total HFA usage/carbon footprint (House of Commons Environmental Audit Committee, 2018).

Two specific propellants, HFC-134a and HFC-227ea, have significant GWP, whereas HFC-152a and HFO 123ze(E) have a lower global warming potential (United States Environmental Protection Agency, 2016). Pharmaceutical companies are developing pMDIs with these lower GWP propellants. The potential launch date for some pharmaceutical companies, Astra Zeneca and Chiesi, is 2025. However, these companies do not produce short-acting ß2-agonist (SABA) pMDIs, which are the single biggest source of inhaler carbon emission (https://openprescribing.net/measure/carbon_salbutamol/).

RECYCLING INHALERS

While recent emphasis has focused on the carbon footprint of gases used in pMDIs, the environmental life cycle of all devices from manufacture to disposal has not been addressed in the same way. If there is a large switch to DPIs, there is the potential to increase human toxicity, marine eutrophication (increase in nitrogen and phosphorus concentrations causing algal blooms, dead zones which kill sea life, and fossil depletion (Jeswani and Azapagic, 2019). Although some recyclable plastic is used in some inhalers, the way that the devices are produced means that dismantling of these devices to recycle the constituent parts may be financially prohibitive. Indeed, extrapolation from a small study would suggest that the majority of people appear to dispose of their inhaler through domestic waste (Sivarajasingham, 2021).

To address the disposal of inhalers and experience from other recycle schemes, such as ink cartridge companies and coffee pods, Leicestershire, with the support of Chiesi, undertook a proof-of-concept full recycling scheme, called Take AIR (action for inhaler recycling). All types of inhalers could be posted to a recycle centre, where they were manually broken down into component parts ready for recycling, with non-recyclable inhalers or parts of inhalers processed for energy-from-waste. pMDI aluminium canisters were crushed for recycling with the remaining gas extracted for reuse in refrigeration and air conditioning units. Approximately 20,000 inhalers were returned, reportedly saving 119.3 tonnes of CO2 entering the environment (Murphy et al, 2023).

The financial sustainability of recycling inhalers is unclear and would require a national programme to be effective. Due to reduction in the economies of scale, it is projected that the reduction in non-medical uses of propellants is likely to give rise to a five-fold increase in their cost for pMDI (Pritchard, 2020). However, 'cradle to grave' or life cycle impact assessment reviews identify that production, distribution and disposal are the main contributors to the carbon footprint of all inhalers (Jeswani and Azapagic, 2019; *Figure 1*). A review of the carbon footprint and life cycle assessment of the published evidence of inhalers has concluded that currently the use of

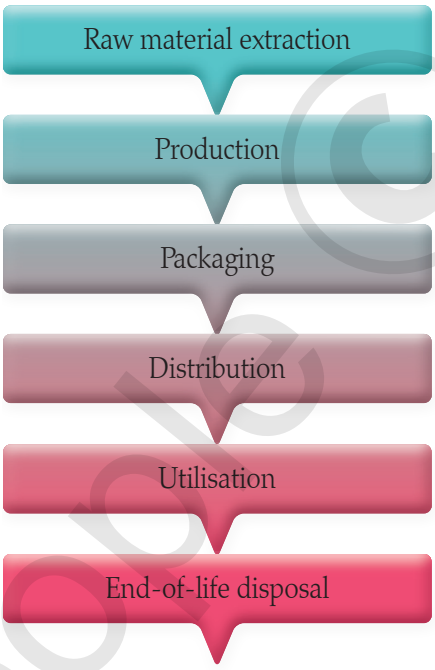

FIGURE 1.
Inhaler life cycle (adapted from Jeswani and Azapagic, 2019).

DPIs and soft mist inhalers (SMIs) has a lower carbon footprint than pMDIs (British Thoracic Society [BTS], 2020). Literature reviews highlight the complexity of comparing different DPIs when measured against environmental impact categories depending on design, choice of manufacturing materials and manufacturing process (Woodcock et al, 2022).

The necessity to reduce GWP has resulted in various aids being developed which focus on the HFA propellant as a basis to aid inhaler choice, encouraging healthcare professionals to switch to dry powder devices (DPIs) or re-usable SMIs, which contain no propellant (National Institute for Health and Care Excellence [NICE], 2019; PrescQuipp Bulletin 295).

The focus should always be on the individual patient's ability and wish to use an alternative inhaler. For example, while most people with controlled asthma are capable of using a DPI, the young, elderly, those with severe disease, i.e. difficult asthma or severe COPD, may still require a pMDI with or without a spacer device, particularly to manage acute exacerbations (Barbara et al, 2017; *Box 1*).

Box 1

Inhaler device choice considerations

- Do not change a device without discussing with the patient
- Minimise technique confusion by prescribing the same type of inhaler device for each medication
- Is the person able to take a quick deep inspiration to use a DPI?
- Is the person able to take a slow and steady inhalation to use a MDI, breath-activated MDI (BAMDI), SMI?
- Does the patient have sufficient dexterity to prime or load the device?
- Can the patient form a good seal around the mouthpiece?
- Is the patient agreeable to using a particular device?
- Take into account environmental factors when prescribing inhalers

QUALITY OF LIFE AND PATIENT OUTCOMES

This focus on reducing the carbon footprint does not take into account the need for a broader approach to improving quality of care and patient outcomes. National and international guidelines for asthma and COPD management have existed for many years, but with little evidence in a reduction of morbidity or mortality. This was particularly noted by the 2014 UK National Review of Asthma Deaths (NRAD), where potentially preventable factors were identified in two-thirds of the scrutinised medical records (Levy, 2015). Switching SABAs from a pMDI to a DPI may reduce the carbon footprint, but would significantly increase the cost of these inhalers. However, the focus on asthma care which has identified the suboptimal use of inhaled corticosteroids and overuse of SABAs, i.e. more than three inhalers prescribed per year, has the potential to reduce the carbon footprint by reducing over prescribing and overuse of SABAs (Nwaru et al, 2020), and, as evidenced in the NRAD, reduce mortality (Royal College of Physicians [RCP], 2015).

The NRAD (Levy, 2015) also highlighted the importance of comprehensive asthma reviews with an asthma trained and knowledgeable clinician. The NHS has a long history of underinvestment which, in the author's opinion, has resulted in less training for clinicians and time constraints in general practice where the majority of asthma and COPD care takes place. With these pressures there has come a longstanding challenge in prioritising inhaler technique, with many clinicians having a poor understanding of good inhaler technique for the various inhaler devices (Nguyen et al, 2010; Scullion, 2018; Swami et al, 2021). For example, pMDIs, breath-actuated metered dose inhalers and SMIs require coordination of gentle, slow and steady inhalation with actuation of the device, whereas DPIs are breath actuated and require a more quick, deep and forceful inhalation technique (Murphy, 2016).

Poor inhaler technique will result in poor lung deposition of the drug leading to poorly managed asthma or COPD (Usmani et al, 2018). As a consequence, poor symptom control may lead to overuse of SABAs, thereby increasing carbon emission (NHS Investment and Impact Fund, 2022). A high level of critical inhaler errors in a mixed population of patients with a diagnosis of asthma or COPD was identified in clinical trial participation, but interestingly, inhaler technique training significantly reduced these errors (Perumal, 2020). Usami (2022) also evaluated the importance of repeated inhalation guidance to reduce inhalation errors. As clinicians, our role is to take a patient-centred approach, especially when managing inhaler use for respiratory conditions. Indeed, appropriate and effective inhaler use is vital for managing these conditions, minimising waste, and improving quality of care and patient outcomes. This can be achieved through:

- Patient assessment and education: evaluate the patient's condition, considering their specific diagnosis, any comorbidities, as well as their understanding about their condition and treatment. It is vital to educate patients about their condition and why they need to adhere to medication, and the role of inhalers in their treatment plan
- Review medication: make sure that the prescribed medication is appropriate for the patient's condition by reviewing their medical history, undertaking any tests, and consulting guidelines to confirm correct medication choice and dosage
- Device choice: the most appropriate inhaler device should always be selected. This involves considering factors such as the patient's age, physical abilities, and personal preferences. Some patients may prefer DPIs, while others may find metered-dose inhalers (MDI) more suitable
- Inhaler technique: as said, correct inhaler technique is essential for effective delivery of medication. Healthcare professionals should give patients step-by-step instructions and get them to demonstrate their technique to ensure that they are using the device correctly. This provides an opportunity to correct any errors. Offer visual aids or written instructions if needed
- Patient engagement: patients should be involved throughout in decision-making regarding their inhaler and treatment plan. Healthcare professionals

Practice point

Guidelines recommend that no person with a diagnosis of asthma should be using a SABA as monotherapy. The benefits of inhaled corticosteroids are established and overuse of SABA by patients should be reviewed (Reddel et al, 2022).

should encourage them to ask questions and express any concerns, which should be addressed, for example, considering an alternative treatment plan. Such a collaborative approach can improve patient satisfaction and adherence to the treatment plan

- Regular follow-up: follow-up appointments should be scheduled to monitor the patient's progress, assess their inhaler technique, and address any issues that may have arisen. This allows the treatment plan to be changed as needed
- Environmental considerations: patients should be educated about the environmental impact of inhalers and disposal options. Some inhalers have a high carbon footprint, thus choosing eco-friendly options when available may be a consideration.

PHARMACEUTICAL INDUSTRY

Pharmaceutical companies have an important role in the development not only of new therapies, but also in optimising the manufacturing of more sustainable inhalers which are reusable and capable of longer treatment times — rather than 30 days. One company which produces a soft mist inhaler (Respimat®) has made a positive start by producing a reusable non-propellant inhaler (Hänsel et al, 2019).

As global businesses, pharmaceutical companies, in addition to utilising propellants with a lower carbon footprint, are proactively setting targets to reduce their total emissions based on the science based targets initiative (Association of the British Pharmaceutical Industry [ABPI], 2023; Science Based Targets, 2023). Greenhouse gas emissions are categorised into three groups or scopes in the private sector to enable organisations to reduce emissions (*Box 2*). Therefore, the pharmaceutical industry and the NHS, along with many other industries, have set ambitions to drive change to a low carbon footprint.

As clinicians at the forefront of clinical practice, there are practical options for reducing the carbon footprint of inhalers. These include reviewing patients to ensure optimal control and reducing the over use/reliance on SABA pMDIs, ensuring correct inhaler technique and only discarding any inhaler, particularly a pMDI, when it is empty. Although the opportunities for recycling used inhalers are limited, patients should be discouraged from placing inhalers in general rubbish bins and return then to the pharmacy (BTS, 2020)

CONCLUSION

The irony of diseases such as asthma and COPD which can be aggravated by the environment is that they are being managed by the use of inhalers to deliver medication, which are contributing to climate change (Rabin et al 2022). Therefore, it is vital for healthcare professionals to optimise disease and self-management through correct selection of inhaled medications and inhalers, along with non-drug methods, such as smoking cessation, good breathing techniques, weight reduction and exercise. GPN

Box 2

Cutting carbon emissions (ABPI, 2023)

- Scope 1: Direct emissions — boilers, vehicles, changing international distribution networks
- Scope 2: Indirect emissions — switching to renewable energy suppliers
- Scope 3: Indirect emissions — entire lifecycle of medication manufacturing process - suppliers of components used in medications, transportation of raw materials and by products of manufacturing

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Enhancing pre-registration nursing education: student leadership placement

Clinical placements play a crucial role in the education of pre-registration nursing students, enabling them to gain practical experience and exposure to diverse clinical settings. This article explores the development and pilot of the Leeds primary care student leadership placement, a novel approach to address the challenges posed by limited general practice nursing clinical placement opportunities. The placement, developed and implemented as part of the Queen's Nursing Institute (QNI) Community Nursing Innovation Programme 2022–2023, provided four final-year adult nursing students with access to a general practice placement spanning a primary care network (PCN). Under a structured programme of support, these students led on NHS health check clinics across multiple sites. The project's findings indicate that the placement resulted in increased knowledge and understanding of the general practice nursing role, preventative healthcare, health needs and health inequalities, digital health, inclusion and leadership skills and attributes. Moreover, the concept raised awareness of career pathways available in general practice among new registrants and established a sustainable practice learning model, which is adaptable to all healthcare settings. This demonstrates the value and potential of innovative clinical placement approaches in nursing education.

KEY WORDS:

- General practice placements
- Career pathways
- Education
- Healthcare delivery
- General practice nursing

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The development of the 'Leeds primary care student leadership placement' was spearheaded by the practice learning facilitator in conjunction with the Queen's Nursing Institute (QNI) Community Nursing Innovation Programme 2022–2023, in collaboration with various local partners, including higher education institutions (HEIs), NHS practice partners, local council organisations, integrated care board (ICB) colleagues and private, independent, and voluntary organisations. Over a 10-week period, the pilot programme involved four adult nursing students who assumed leadership roles in conducting NHS health check clinics across a primary care network (PCN) in Leeds. These clinics were held at six practice sites.

This article overviews the project, examining outcomes observed among key stakeholders and discussing the implications for future leadership placements in nursing education.

BACKGROUND

In recent years, the NHS has outlined ambitious plans for the transformation of healthcare service delivery, emphasising the need to effectively manage the growing complexity within communities. A crucial component of these plans is the role of general practice nurses (GPNs) in delivering preventative healthcare, as highlighted in the NHS 'Five Year Forward View' (NHS England, 2014) and the NHS 'Long Term Plan' (NHS England, 2019). However, concerning workforce projections from NHS Digital (2023) and the Health Foundation (2022) indicate a significant shortfall in the number of GPNs required to fulfil the objectives outlined in these strategic plans.

Various challenges contribute to the recruitment and retention issues within the general practice nursing workforce. An ageing workforce, limited career development opportunities, excessive workload pressures, and a declining interest among newly registered nurses to pursue general practice as their first career destination are all exacerbating the issue (QNI, 2015; Butler, 2022). In response, the NHS general practice nursing ten-point plan and Health Education England's (HEE) 'General Practice Nursing Workforce Development Plan (NHS England, 2017; HEE, 2017), propose measures to enhance the visibility of general practice nursing careers and support the expansion of high quality, sustainable clinical placements.

Within the Leeds region, the availability of clinical placement opportunities had decreased by 91.6% following the first wave of the Covid-19 pandemic. General practices cited workforce challenges, clinical pressures, doubts about the value of the student contribution in practice and concern around the impact placements would have on service delivery as the primary reasons for their inability to provide placement opportunities. This situation created a bottleneck effect on future recruitment efforts.

Consequently, the practice learning facilitator developed a highly structured, immersive, needs-led placement, which aimed to:

- Expand high quality placement provision for pre-registration nursing students in general practice, working across PCN footprint
- Raise the profile of general practice nursing and provide fundamental exposure to career pathways available upon registration
- Enable pre-registration nursing students with the opportunity to develop leadership skills through delivery of NHS health check clinics
- Give pre-registration nursing students the opportunity to increase knowledge and understanding of primary prevention, health needs, health inequalities and digital health and inclusion
- Enable pre-registration nursing students to be supervised and assessed across a PCN.

Table 1: Student placement timetable

Week 1: structured learning week	Clinical teaching sessions: ■ Placement induction/gaining IT access ■ ICB population health team ■ PCN manager ■ Social prescriber ■ Health and wellbeing coach ■ Local care partnerships manager ■ 100% digital Leeds Learner led activities: ■ Health needs assessment workbook ■ Locality walk about activity and case study ■ NHS health check e-learning on e-learning for healthcare (ELFH)
Weeks 2–3: shadowing weeks	■ Shadowed GPNs and HCAs undertaking NHS health checks ■ Read practice guidelines/pathways/service specifications on NHS health checks ■ Taught how to use the clinical system which holds electronic patient records, including navigating the NHS health check template ■ Led on a venepuncture clinic in pairs under supervision and signed off as competent at the end of the clinic ■ Taught how to use the ICE system
Weeks 4–9: student-led clinic weeks	■ Led three NHS health check clinics per week in pairs ■ Every Tuesday spent time in a third-sector community organisation ■ Supporting digital inclusion conversations
Week 10: final week	■ Shadowing GPN

SETTING UP THE PLACEMENT

The placement was meticulously designed to align with the proficiencies outlined by the Nursing and Midwifery Council (NMC, 2018), as well as the curriculum delivered by local HEIs (*Table 1*). This approach aimed to establish a comprehensive framework, enabling students to acquire and apply knowledge and skills, enhancing the outcomes of their practice learning experience. Literature has shown that structured learning experiences significantly contribute to the development of competence and confidence among students, promoting critical thinking, problem-solving, autonomy and decision-making (Zhan and Finch, 2012; Hollander et al, 2018).

During the initial learning week, a comprehensive series of clinical teaching sessions were delivered by subject matter experts, supplemented by learner-led activities. The primary objective of this front loading of education was to equip the students with the necessary skills and knowledge to lead high-quality health check clinics. This approach aimed to foster a contextual understanding of preventative healthcare which is responsive to both community and individual need, and how optimal health outcomes are achieved when integrated working

practices are implemented (King's Fund, 2020; Department of Health and Social Care [DHSC], 2021).

The second and third weeks of placement were structured so that the four students shadowed the GPNs and healthcare assistants (HCAs) in leading NHS health checks and, where appropriate, were offered the opportunity to lead consultations under supervision. The students were given access to the electronic patient record system and received extensive support to develop their proficiency in venepuncture, by taking the lead in a bloods clinic under supervision of a registered nurse. The attainment of this competency was assessed using an adapted version of the Royal College of Nursing venepuncture assessment framework (RCN, 2016). Upon successful assessment, the documentation was uploaded to the students' electronic practice assessment document. Achieving this skill was fundamental to the outcomes of the programme, enabling the students to fully lead on each NHS health check appointment.

Furthermore, the students were guided in navigating the electronic patient record system, specifically the NHS health check template and were trained in the utilisation of the integrated clinical environment (ICE) bloods system. They were provided with detailed instructions on the appropriate protocols to follow in the event of abnormal test results and were familiarised with the various avenues for referral should they encounter individuals seeking further support.

RUNNING THE CLINICS

In weeks four to nine the students actively led on three NHS health check clinics per week, working in pairs to provide five 30-minute consultations in both a morning and afternoon. Throughout the consultations they demonstrated their ability to assess individual risk of developing cardiovascular disease (CVD) using a comprehensive approach. This assessment involved the utilisation of the supportive templates on the electronic patient record system, gathering crucial information about a person's family history of CVD, medications, blood pressure (up to three readings), pulse examination (including identification of irregularities), exercise patterns, dietary habits, smoking status, alcohol consumption using the alcohol use disorders identification test (AUDIT-C) and blood screening. Through this holistic assessment process, the students became proficient in identifying patients categorised as low, medium, or high risk of developing CVD.

DIGITAL HEALTH

Since receiving training on digital health communication during their initial week, the students were equipped with the necessary tools to engage in meaningful conversations with individuals regarding their health priorities and preferences, motivating health behaviour and lifestyle change (National Institute for Health and Care Excellence [NICE], 2020). As part of the immersive placement experience, every Tuesday the students dedicated their time to visit a local third-sector hub. The hubs provide access to a wealth of community resources such as dementia cafes, breakfast clubs, leg clubs focusing on wound care, and outreach to the most vulnerable and isolated people within the community. This opportunity allowed the students to offer personalised support and guidance on digital healthcare, facilitating social inclusion while simultaneously improving individual and population health outcomes.

In the final week, the students were given time for reflection on the NHS health check clinics they had conducted, allowing them to carefully examine what health needs they had identified and the health guidance, support, and referrals they had provided. This offered the students a chance to contemplate their personal and professional development throughout the placement and the impact they had on patients' lives.

SUPERVISION AND ASSESSMENT

Traditionally, student support in general practice follows a one student to one practice model. However, for the purpose of conducting NHS health check clinics across a PCN and due to challenges related to estates and facilities, the students spoked out to six practices between weeks four and nine when leading on their own clinics. To accommodate this arrangement, the NMC Standards for Student Supervision and Assessment (2018) were employed flexibly to adapt supervision and assessment processes to a multi-site context.

The four students were paired into two groups — two students assigned to one base practice and the other two to another. Within each base practice the students had a designated practice supervisor and assessor who oversaw their activities. During week four and one day per week for the subsequent five weeks, the students operated from their respective base practices, enabling periodic assessment to occur. Additionally, each student had a named practice supervisor in the spoke practices across the PCN. To ensure a smooth transition and facilitate effective collaboration, the students were encouraged to establish contact with their spoke practice before leading on a clinic. This allowed for induction and orientation to the new setting. It was agreed that the practice supervisor would be available to the students, offering support and the opportunity to escalate any concerns. Structured debriefing sessions with the practice supervisor were scheduled at specific points during the day, such as at the end of each morning and afternoon clinic session.

Supervision was consistently available to the students and all supervisors were responsible for providing feedback to the practice assessor. The supervisors and assessors held overall responsibility for reviewing student records to ensure completion of all aspects of the NHS health check, as well as the provision of appropriate follow-up and referrals based on individual need.

OUTCOMES

Service user outcomes

The four students were able to create

additional capacity to offer 380 appointments for NHS health checks. Out of these 380 appointments, 299 were attended by eligible individuals. *Figure 1* shows the audited results of the NHS health check appointments, using a predeveloped framework.

The completion of the NHS health checks by the students facilitated early identification of individual QRISK (a model used to estimate a person's heart age and their risk of cardiovascular disease). This allowed for the implementation of timely interventions and support for lifestyle and health behaviour change. This proactive approach by the students is expected to reduce costly medical interventions and hospitals stays in the future, while contributing to reduced morbidity and mortality rates within the PCN population.

Additionally, the project lead sought to enhance service user satisfaction and gain insight into the patient experience during student-led activity. A survey, loosely based on the NHS Friends and Family Test, was developed to assess service user experience. It revealed high levels of perceived satisfaction, as reflected in positive quotes provided by service users, praising the students' friendliness, competence, and thoroughness. Service users expressed appreciation for the check up and reported feeling at ease during the appointments. They highlighted the value of the student-led service in terms of reassurance, validation, and the opportunity to receive advice and guidance on various aspects of their health and lifestyle. Overall, the service user feedback was positive, indicating a well led service that addressed the needs of the PCN population (*Figure 2*).

Student outcomes

To assess the increase in student knowledge and skills related to health needs, health inequalities, leadership, and digital health, pre-and post-placement surveys were conducted. Comparatively, the data suggest an overall increase in student skills, knowledge and confidence throughout the placement in relation to all key areas of focus — leadership, health needs, health inequalities and digital health. By the end of the placement, all students reported feeling confident in their ability to lead, which aligns with NMC (2018) expectations that third-year students should be 'leading and co-ordinating care with confidence'.

Low Q Risk	Medium Q Risk	High Q Risk
(Less than one in 10 risk of having a heart attack or stroke in the next 10 years)	(One to two in 10 chance of having a stroke or heart attack in the next 10 years)	(At least two in 10 chance of having a stroke or heart attack in the next 10 years)
64.21%	26.7%	6.68%
Outcome: Lifestyle support offered Review in five years	**Outcome:** Lifestyle support, statin offered and review in five years	**Outcome:** Lifestyle support, statin offered a statin and review in one year

FIGURE 1.
Breakdown of the audited results of the NHS health check appointments.

Qualitative data obtained from further questions provided greater insight into their perceptions and experiences. The students identified specific aspects of academic learning they had applied, including long-term conditions, personalised care and motivational interviewing. The students were able to identify how they supported digital health and inclusion, guiding individuals to use the NHS app, utilising SMS services and advising on where to access free WiFi. They also reported feeling well-supported by the practice learning facilitator (PLF) and the practice supervisor/practice assessor (PS/PA) within all practices, as well as benefitting from peer support during their clinics. This feedback highlighted the positive impact of structured support on their learning, achievements, and patient care through both the survey and the national education and training survey (NETS) submitted on the practice assessment record and evaluation system.

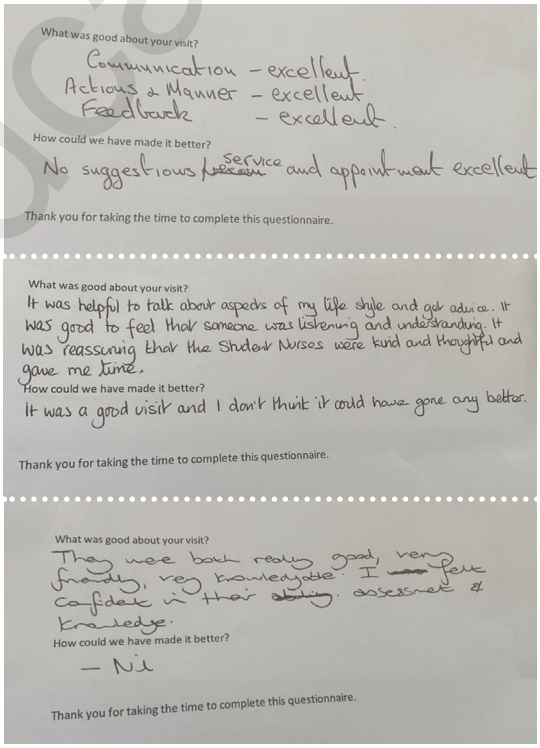

FIGURE 2.
Service user feedback.

Notably, one of the biggest student outcomes was the shift in career aspirations during the placement, all transitioning from a desire to work in high dependency unit/intensive care unit (HDU/ICU) settings to a new found interest in pursuing a career in general practice nursing.

PS/PA outcomes

Since a novel approach to supervision and assessment was used, it was essential to assess the experiences of the PS/PA. The feedback highlighted numerous benefits, including:

- Student engagement
- Willingness to learn
- Effective application of theory in practice
- Development of student knowledge and skills.

They expressed positive views regarding student performance and acknowledged that they contributed in both presence and support. While recognising the mutual support between the students, some respondents suggested the need for additional support from the nursing team during the early part of the placement. Overall, the respondents were impressed with the pilot programme and considered it a good way to expand knowledge and raise the profile of general practice nursing careers.

CONCLUSION

The Leeds primary care student leadership placement has emerged as a transformative and successful initiative to expand placement capacity, demonstrating the value students add to service delivery. Through this programme, two students have secured substantive roles in the pilot PCN, two students are returning into general practice nursing within the next year, and three out of the four on the current phase have secured placements on the primary care vocational training scheme, building the future workforce, contributing to high-quality placement experiences, and showcasing the pivotal role of students in healthcare.

The placement has not only highlighted the increasing importance of digital healthcare, but has also served as a model that can be replicated and transferred to other health and social care settings, responding to the variations in service need and developed around different public health foci. Its success was further reinforced by the effective integration of various health and social care professionals and teams, emphasising the importance of collaborative working. The innovative supervision and assessment approaches have been proven to be effective, offering new possibility for assessing student performance and providing valuable insight for future practice. Additionally, the financial return on investment underlined the programme's sustainability and long-term viability. Achievements of the placement have been acknowledged and celebrated at both national and regional levels and the author was honoured to be selected as a finalist in the Student Nursing Times Awards 'Community Placement of the Year' and awarded with the Leeds Community Healthcare NHS Trust Project of the Year Award. Its recognition as a case study in best practice further validates its excellence as a guiding example for others.

In conclusion, the placement has made significant impact, both in expanding placement capacity and promoting the value of learners in healthcare. Its achievements, recognition and transferable model highlight its transformative potential and serves as a benchmark for excellence in clinical placement innovation. This initiative has not only benefitted the students and service users, but has also contributed to the future development and enhancement of healthcare delivery at the heart of communities. **GPN**

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Heart failure in primary care

Heart failure (HF) remains one of the most common reasons for hospital admissions and is predicted to rise substantially in the next decade. As many of these patients have other comorbidities, general practice nurses (GPNs) are in the ideal position to assess and identify any possible deterioration before it results in admission. Having a good understanding of HF, terminology and treatment will assist with this, and standardising care and reviews in line with current guidelines will improve care.

WORDS:

- Heart failure (HF)
- Diagnosis
- Classifying
- Symptoms
- Treatment

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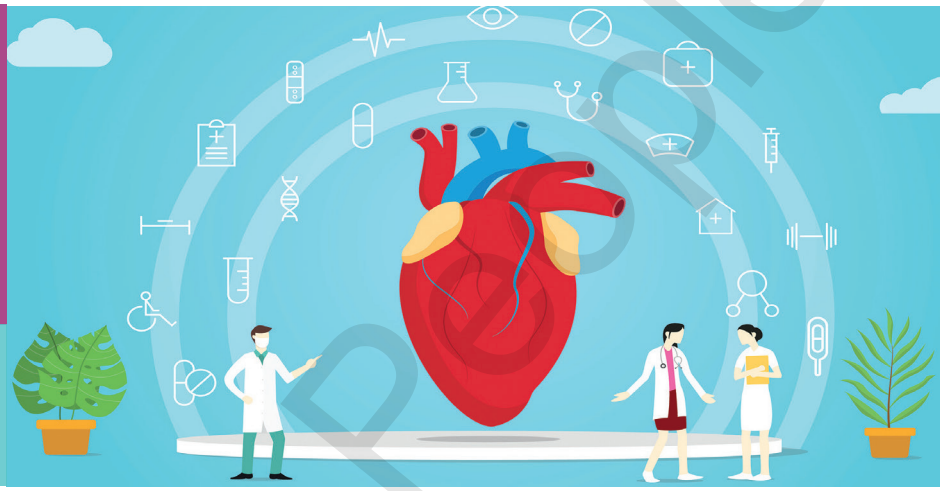

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Heart failure (HF) is the commonly used term for when the heart is failing to pump efficiently, or as Pumping Marvellous Foundation calls it, 'an inefficient heart'. Despite a great deal of advances in treatment in the last 20 years, it remains one of the chronic diseases with reduced life expectancy and the most common cause of hospitalisation in over 65 year olds (Mamas et al, 2017). It is predicted to rise substantially over the next decade with increasing age and has a worse mortality than prostate cancer and bladder cancer in men — five-year survival of 55.8% compared to 68.3% and 57.3% respectively (Driscoll et al, 2022). In women, it has a worse mortality rate than breast cancer — five-year survival of 49.5% compared to 77.7% (Driscoll et al, 2022).

Heart failure symptoms, both acute and chronic, can frequently be picked up by general practice nurses (GPNs) in primary care during chronic disease reviews. The risk factors for heart failure overlap with many other conditions, such as smoking, obesity, reduced exercise, previous cardiovascular disease, diabetes and hypertension.

Prevalence in the UK remains approximately 1–2%, rising to almost 7% in over 80 year olds (British Heart Foundation [BHF], 2023). With an ageing population, it can almost be guaranteed that more of these patients will be seen in primary care, in both chronic disease management clinics and acute presentations. Although prevalence is similar, the incidence has reduced slightly from 2008–9 to 2017–2018, primarily due to improvements in post-myocardial infaction (MI) care. Unsurprisingly, the number of patients with multiple comorbidities in patients with HF has increased from 68% in 2002 to 87% in 2014 (Conrad et al, 2018). This is supported by the findings of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) 2018, which found an average of four comorbidities per patient.

Unfortunately, patients with lower socio-economic status will have higher risk comorbidities due to smoking, obesity and hypertension, resulting in an increased cardiovascular risk (Conrad et al, 2018). These patients are also at risk of developing heart failure at a younger age, with those in the lowest socio-economic status having a 61% increased risk of heart failure (Conrad et al, 2018). GPNs working in areas of deprivation would benefit from identifying these patients earlier to give the best opportunity to improve their health for the future.

For the GPN, symptoms of heart failure may be picked up during an annual review of hypertension, diabetes or coronary heart disease, as these share the same risk factors and increased risk of HF. However, it could also be during an asthma or chronic obstructive pulmonary disease (COPD) review that increased breathlessness and ankle oedema are found.

DIAGNOSING AND CLASSIFYING HEART FAILURE

In an effort to define HF as a continuum and identify patients at risk earlier in their journey, the American College of Cardiology/American Heart Association (ACC/AHA) and Bozkurt et al (2021) joint consensus defines HF as four stages (*Table 1*).

Symptomatic patients are categorised as stage C and D. After many years and differing terminology being used to classify heart failure,

2021 saw an agreement between the international heart failure societies to classify it as:

- Heart failure with preserved ejection fraction >50%, known as HFpEF
- Heart failure with mildly reduced ejection fraction 41–49%, known as HFmrEF
- Heart failure with reduced ejection fraction <40%, known as HFrEF

(Bozkurt et al, 2021).

This provides a universal understanding of a diagnosis of HF, which may present as chronic heart failure (CHF) or acute heart failure (AHF). This can be further classified by using the well-known New York Heart Association (NYHA) scores (Bennett et al, 2002), which have been around for decades and give an idea of how HF affects daily life (*Table 2*).

DIAGNOSIS

The National Institute for Health and Care Excellence (NICE, 2018) advises that diagnosis of HF should be carried out by specialists. However, the NCEPOD 2018 review of patient care in patients admitted to hospital with AHF and subsequently dying, found that only 33% of patients had been reviewed by a HF specialist during their admission. It is not clear whether this was due to a lack of HF specialists or lack of protocols highlighting these patients and necessary pathways. Despite this, there are a variety of tests which can be performed in primary care to improve timescale to diagnosis.

Recognising the symptoms

A suspicion of HF may arise if the patient has ankle oedema, breathlessness or complaining of fatigue. Taylor (2023) has developed an acronym for use in primary care to help identify these patients earlier. The BEAT-HF acronym — breathless, exhausted, ankle swelling,

Table 1: Four stages of heart failure (adapted from Bozkurt et al, 2021)

Stage	Description
Stage A: at risk of HF	▪ At risk of HF but no current or prior symptoms, no structural biomarker or genetic markers of CHD ▪ Patients with HTN, CVD, DM, obesity, FH cardiomyopathy
Stage B: pre-HF	No current or prior symptoms or signs of HF, but have evidence of one of the following: ▪ Structural heart disease ▪ Abnormal cardiac function ▪ Elevated NT-proBNP or troponin levels
Stage C: HF	▪ Have current or prior symptoms of HF ▪ Can have structural and/or functional cardiac abnormality ▪ Could be heart failure in remission or persistent heart failure
Stage D: advanced HF	▪ Severe symptoms +/- HF at rest, recurrent hospitalisations ▪ Requiring advanced therapies, transplant, LVAD or palliative care

CVD = cardiovascular disease, CHD = coronary heart disease, DM = diabetes mellitus, HTN = hypertension, LVAD = left ventricular assist device

Practice point

How many patients in your surgery are diagnosed with heart failure? What is your prevalence?

time for a blood test has also been adopted by the patient-led heart failure charity, Pumping Marvellous Foundation. This is a useful positive resource to refer patients to: https://pumpingmarvellous.org/ .

An easy way to check is a blood test for N-terminal pro B-type natriuretic peptide, commonly known as NT-proBNP. The IMPROVE-CHF study found this to be an excellent low-cost predictor for heart failure (Moe et al, 2007), which is only available in primary care (*Table 3*). If NT-proBNP is <400ng/litre, HF is less likely and other differential diagnoses — such as COPD, asthma, pulmonary embolism, prolonged inactivity or venous insufficiency causing dependent oedema among others (NICE, 2023c) — need to be explored. High levels of NT-pro BNP >400ng/litre may indicate HF and these patients should be referred for an echocardiogram (ECHO) and specialist review within six weeks (NICE, 2018). Very high levels, NT-proBNP >2000ng/litre have poorer prognosis, therefore urgent referrals for ECHO and specialist reviews should be done to ensure that they are reviewed within two weeks (NICE, 2018).

Although a specific test for HF, be aware that high or low levels of NT-proBNP may be found in other conditions (*Table 4*). If a patient does present with high NT-proBNP and has atrial fibrillation (AF), it would be pertinent to highlight this in any referral to cardiology or for ECHO.

Other blood tests which should be checked to identify other reasons for symptoms, include:

- Kidney
- Liver
- Thyroid
- Full blood count (FBC)
- Lipids
- Haemoglobin A1C (HbA1C)
- Ferritin
- Iron
- Transferrin saturations

(NICE, 2023c).

A comprehensive history and assessment should be taken as soon as possible, which may mean referring to the on-call GP or advanced nurse practitioner (ANP). The likelihood is it may not be possible even for the most experienced GPN to perform this in the middle of a busy chronic disease clinic. The GP/ANP should obtain a full clinical history and perform chest auscultation, including heart sounds, jugular venous pressure (JVP) and hepatojugular reflex (Scottish Intercollegiate Guidelines Network [SIGN], 2016) .

Time permitting, more information can be gained by some easy questions, such as:

- Breathlessness: do you get short of breath on exercise (SOBOE)? At rest? Lying down/orthopnoea — how many pillows do you use?
- Do you wake up overnight breathless or coughing/paroxysmal nocturnal dyspnoea (sensation of being short of breath that causes person to waken)? Do you have

Table 2: New York Heart Association (NYHA) functional classification based on severity of symptoms and physical activity (Bozkurt et al, 2021)

NYHA 1	▪ No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations
NYHA II	▪ Slight limitation of physical activity. Comfortable at rest, but ordinary physical results in fatigue, palpitation, shortness of breath or chest pain
NYHA III	▪ Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, shortness of breath or chest pain
NYHA IV	▪ Unable to carry out any physical activity without discomfort. Symptoms at rest

Table 3: NT-proBNP results (NICE, 2018)

NT-proBNP <400ng/litre	▪ HF unlikely, review differential diagnoses
NT-proBNP >400ng/litre	▪ HF likely, refer for ECHO and specialist review within six weeks
NT-proBNP >2000ng/litre	▪ HF likely, refer for ECHO and specialist review within two weeks

any sputum, specifically white frothy sputum?
- Oedema — mild/moderate/severe and identify where; nil/above ankle/mid-calf/below-knee/sacral
- Fatigue: are you tired during the day?

Obtaining or requesting an electrocardiogram (ECG) will provide valuable information, including left ventricular hypertrophy (LVH), left bundle branch block (LBBB), or picking up on AF. A truly normal ECG is unusual in a patient with HF (SIGN, 2016). A chest x-ray can show any cardiomegaly or other cause of breathlessness. Additionally, NICE guidelines (2018) suggest peak expiratory flow rate (PEFR) and spirometry may be useful to rule out asthma or COPD.

As previously mentioned, a diagnosis of HF should be given by a HF specialist.To help patients understand their diagnosis, there are several resources available from the BHF and Chest, Heart and Stroke Scotland (CHSS). Pumping Marvellous Foundation (online) help put a more positive spin on quite a worrying diagnosis.

TREATMENT

The standard treatment for HFrEF includes angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (ACE/ARB), beta-blockers (BB) and mineralocorticoid receptor antagonists (MRA). NICE (2018) suggests initiation in this order with titration approximately every two weeks. This may take between four and six months to get to target depending on the severity of the condition, reaction to medications and other comorbidities. Beta-blockers can be started soon after the ACE/ARB if tachycardia or AF is a problem. There is a wealth of information for healthcare professionals to help with initiation and titration, specifically annexes 2–6 (SIGN, 2016) covering ACE, ARB, BB, MRAs and problem-solving. Although most of the time these medications will be started in secondary care, the National Institute for Cardiovascular Outcomes Research and the National Cardiac Audit Programme (NICOR/NCAP, 2021) found that only 49% of inpatients were discharged with all three drugs in place. In addition to this, only 55% of all patients received a HF nurse follow-up appointment. It is therefore important to check dosages and ensure that the patient knows the risks/benefits and why they are taking these medications.

Sick day rules should also be discussed if on diuretics, ACE/ARB, MRA, ARNI and SGLT2s, ensuring that the patient knows when to stop medications and/or get in touch with GP/HF specialists. Patients can quickly become fluid overloaded when they stop or go into renal failure if they continue to take these medications (*Table 5*).

If a patient continues to be symptomatic on maximum tolerated baseline medications, they will require review by the HF team to decide if they should be started on further therapies which can only be initiated by HF specialists, e.g. angiotensin receptor/neprilysin inhibitors (ARNI), ivabradine or sodium-glucose cotransporter-2 inhibitors (SGLT2). ARNI, such as sacubitril/valsartan, are used in replacement of ACE/ARB and are more superior. They are reserved for patients with LVEF <35% (Harris et al, 2019). Ivabradine can help if tachycardic and criteria for initiation is pulse >75bpm and LVEF <35%. SGLT2s, hydralazine+nitrate or digoxin can also be added if the patient remains symptomatic (NICE 2023e).

Although many GPNs are familiar with SGLT2s for patients with diabetes, DAPA-HF (McMurray et al, 2019) and NICE (2023e) advocate the addition of them for HFrEF whether diabetic or not to reduce risk of hospitalisation and sudden death. This should only be done by a HF specialist due to the combined complexities of comorbidities and treatments (NICE 2023e). In HFrEF, patients with type 2 diabetes on

Table 4: High and low levels of NT-proBNP (NICE, 2018)

High NT-proBNP	Low NT-proBNP
Over 70 years old Past medical history of left ventricular hypertrophy (LVH) Arrythmias; atrial fibrilliation Ischaemia Tachycardia Right ventricular overload Hypoxia Renal dysfunction Sepsis COPD Diabetes Liver cirrhosis	Obese people African or African-caribbean If currently on HF medications: diuretics, angiotensin-converting enzyme (ACE) inhibitors, beta-blockers, angiotensin II receptor blockers (ARB), or mineralocorticoid receptor antagonists (MRA)

insulin or sulfonylureas (SU), dosages of medication may need to be reduced by 20% (insulin) and 25–50% (SU) to reduce risk of hypoglycaemia (Shanmuganathan et al, 2021). Using an SGLT2 in type 1 diabetes is contraindicated due to the increased risk of diabetic ketoacidosis (DKA). It is reassuring that the Dapagliflozin and Prevention of Adverse-Outcomes in Heart Failure (DAPA-HF) trial found that SGLT2s do not lower blood glucose in non-diabetic patients (McMurray et al, 2019). Also reassuringly, the 'Number Needed to Treat' who would come to harm from euglycemic ketoacidosis is thought to be around 4,900 patients (Shanmuganathan et al, 2021)

A useful infographic for SGLT2 and cardiovascular disorders can be found at: https://heartfailure.ca/sites/default/files/chfs_practical_approach_algorithm_sglt2i_0.pdf

Iron

Recently, the IRONMAN study (Kalra et al, 2022) has shown a benefit in intravenous (IV) iron supplementation in symptomatic patients with HFrEF or HFmrEF and iron deficiency. This helps improve quality of life and reduce HF symptoms and is now recommended by the European Society of Cardiology (ESC) update on heart failure (McDonagh et al, 2023).

Gout

Managing gout attacks in HF can be challenging for patients and clinicians. This is due to use of diuretics and having to avoid non-steroidal anti-inflammatory drugs (NSAIDs) in severe heart failure and with caution in moderate heart failure, due to the risk of worsening symptoms and increased risk of hospitalisation (NICE, 2023d). As soon as the pain starts, first-line choice is colchicine 500mcg two to four times daily until symptoms are relieved, total dose per course 6mg maximum and do not repeat within three days (NICE, 2023a). Healthcare professionals should also provide warning of diarrhoea with high doses (BNF, 2023). Unfortunately, the use of colchicine is contraindicated if estimated glomerular filtration rate (eGFR) is <15mL/min (BNF, 2023).

Ice packs may also be helpful to reduce pain and regular paracetamol 1g QDS. Once the acute attack has settled, allopurinol 300mg OD can be offered (NICE, 2023a) or febuxostat 40–80mg daily (Howlett et al, 2015). Patients can also be directed to NHS Inform, which has valuable information on gout and how to avoid future attacks: www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/conditions/gout/

Self-care

In addition to usual lifestyle advice provided (diet, smoking cessation, alcohol, exercise), discussion around salt and fluid intake should be given. Salt intake should not exceed 6mg (sodium 2.5mg) daily and it is important to reinforce avoidance of low salt products like Lo-salt, which

Table 5: Heart failure medication summary (BNF, 2023)

Medication	Starting dose	Target dose	Benefits	Common side-effects/ risks*	Monitoring
Diuretics: furosemide	20–120mg OD	Enough to reduce oedema and improve quality of life	Offload fluid, reduce oedema and help breathlessness	Renal problems, hypotension	Needs baseline UE and repeat five to 10 days
ACE/ARB: Ramipril Perindopril erbumine Lisinopril Losartan Valsartan Candesartan	 2.5mg OD 2mg OD 2.5mg OD 12.5mg OD 40mg BD 4mg OD	 10mg OD 4-8mg OD 35mg OD 150mg OD 160mg BD 32mg OD	Relax arteries, offload workload of heart, improve QOL, slow down disease progression, improve life expectancy	Dry cough	Two weekly BP and UEs to target
BB: Bisoprolol Carvedilol	 2.5mg OD 3.125mg BD	 10mg OD 25–50mg BD	Reduce workload of heart, prevent disease progression, improve life expectancy, improve exercise capabilities	Tiredness, erectile dysfunction	Two weekly BP and pulse
MRA: Spironolactone Eplerenone	 25mg OD 25mg OD	 50mg OD 50mg OD	Prevent and treat fluid overload, slow down disease progression, improve life expectancy	Raised potassium, gynaecomastia (spiro)	Regular UEs (approximately one to two weeks after)
Specialist initiation only					
ARNI replacing ACE/ARB: Sacubitril/valsartan	 49/51mg BD or 24/26mg BD if low BP	 97/103mg BD	Increase life expectancy and relieve symptoms of HF or kidney problems	Hypotension, hyperkalaemia	Two weekly initially
Ivabradine (age 18–74) Ivabradine (age >75)	5mg BD 2.5mg BD	7.5mg BD 7.5mg BD	Slows heart rate, reduce workload of heart	Bradycardia, tiredness, dizzyness	Two weekly (ensure pulse >50bpm)
SGLT2: Dapagliflozin	10mg OD	10mg OD	Reduce risk of sudden death and HF hospitalisations	Risk of DKA, genital thrush, Fournier's gangrene, hypotension	

* Please note, this is a list of the most common side-effects, always refer to BNF for complete list

Table 6: Annual reviews

Annual review	Check	Action
Observations	BP, pulse — regular/irregular, weight, body mass index (BMI), oxygen saturation (Sp02%), annual ECG	Hyper or hypotension: GP/ANP New AF: GP/ANP Increasing weight: HF management plan/specialist nurse
Medication	Ensure ACE/ARB, BB +/- MRA. Ask about side-effects and gout Ensure avoiding NSAIDs Give Sick Day card	Document side-effects and maximum tolerated dose If symptomatic and requiring entresto/ivabradine, refer to HF specialist nurse
Bloods	Kidneys, liver, thyroid, FBC, HbA1c, lipids Consider ferritin, iron and transferrin saturation Consider repeating NT-proBNP if worsening of symptoms from NYHA I	Discuss with GP/ANP/HF team if unsure or worsening results
NYHA classification	I = no limitation II =– slight limitation III = marked limitation IV = severe limitation	Refer to GP/ANP/HF team if symptoms worsening
Lifestyle	Daily or weekly weighing? if weight increases 2–3lbs in 24 hours or 5lbs in one week Salt intake? Alcohol? Smoking? Exercise tolerance reduced?	Refer to GP/ANP/HF team Max 6g/daily. Avoid Lo-salt Max 14 units/week STOP — Cessation advice Offer cardiac rehabilitation (if available)
Symptoms	Breathless at rest or on exertion? Orthopnoea (how many pillows?) PND? Frothy sputum? Oedema — ankles/mid-calf/below-knee/sacral Fatigue — after exercise or general?	Refer GP/ANP/HF team. Consider diuretic increase, monitor UE/BP carefully
Refer any worsening symptoms to GP/ANP/heart failure team as appropriate	Chest auscultation — creps, dull percussion, vocal resonance reduced Heart sounds — new murmur, displaced apex, thrills/heaves JVP — raised JVP or positive hepatojugular reflex	Refer to specialist Refer to specialist Refer to specialist

have a high potassium content and can cause hyperkalaemia if on MRAs.

Fluid restrictions may be necessary for some patients, but not all (NICE, 2023b). Measuring daily fluid intake initially will give patients an understanding of how much they are taking, and some patients may require a restriction of 1.5–2 litres, or 30mls/kg if under 85kgs and 35mls/kg if over 85kgs (NICE, 2023b). It is important that patients know there is a minimum level to keep their kidneys happy.

In addition to this, patients with HF should be encouraged to weigh themselves daily and keep a record of results. Some patients will be able to monitor their weight and manage their diuretics independently, i.e. if they gain 2–3lbs in 24 hours, or 5lbs in a week, they can increase their furosemide for three days without needing to contact a clinician (Lainscak et al, 2014).

ANNUAL REVIEWS

Table 6 outlines what should be covered during an annual review for patients with HF.

However, depending on the number of comorbidities and titration of medications, HF patients may need more frequent follow-up. NICE (2023c) suggests at least six monthly but may be three monthly. Once the person is stabilised on medications, HF teams may discharge them to primary care again. GPNs are the ideal professional to identify problems before they become advanced.

HEART FAILURE SPECIALIST NURSE

Since the late 1990s, the benefits of HF specialist nurses have been widely researched with reduction of hospitalisation, improvement in patient quality of life, and an increase in life expectancy found (Stewart et al, 1999; Blue et al, 2001). Most of these teams were set up to deal with HFrEF initially, with some now expected to support the HFpEF population too. Although there is still a lack of robust research in this area (Hossain et al, 2022), Howlett et al (2015) suggest that referrals, repeat assessments, ECHOs and BNP still be offered. However, this could increase HF nurse workload by 50% (Marsters et al, 2019), a figure these specialist nurses will struggle to meet.

The current recommended ratio is one whole-time equivalent per 100,000 patients, but the British Society of Heart Failure (BSH) has recommended that this be increased to two to four specialist nurses per 100,000 (Marsters et al, 2019). Until this happens, many patients could be left on suboptimal treatment with minimal follow-up in secondary care. Thus, it is important that GPNs are aware of what HFrEF is, how it should be managed, promoting self-care and when to refer to secondary care.

CARDIAC RESYNCHRONISATION THERAPY (CRT)

As HFrEF is a progressive disease, there may come a time when all the medical management is not enough and discussion with the HF team is required for cardiac resynchronisation therapy (CRT). Referral may be indicated if the patient remains symptomatic and if the annual ECG demonstrates bundle branch block (QRS width newly >130ms =3.25 small squares) (Harris et al, 2019; Gamble, 2021). CRT can be

Practice point

Consider doing an audit of patients on diuretics? Have they been checked for heart failure? Do they have ankle oedema, SOB, orthopnoea, fatigue?

either CRT-P, meaning 'biventricular pacing', or CRT-D, which includes an implantable defibrillator. CRT involves the placement of two pacing wires into the right and left ventricles of the heart helping it to contract more efficiently. Adding in an implantable cardiac defibrillator (ICD) will help patients at risk of serious arrythmia (SIGN, 2016).

PALLIATIVE CARE

Despite maximising all the medical and interventional therapies, a significant number of patients will go on to develop advanced heart failure (NICE, 2018). It is important that these patients should be part of a combined palliative and HF multidisciplinary team (MDT) and have the ability to use palliative care resources when required.

CONCLUSION

This article has explored HF, from diagnosis through to palliative care, and hopefully has provided more information on the management and review of these patients. With the anticipated increasing numbers of patients with HF, identifying those at risk and being able to improve their management and quality of life, can be a very rewarding part of the GPN role.

Patient story

This 85-year-old gentleman had had a myocardial infarction (MI) in 2001 with no recent ECHO. He was on bisoprolol 2.5mg OD, ramipril 5mg OD, and atorvastatin 80mg OD.

His wife made an appointment for him to see the ANP as he was sleeping all the time, falling over and getting breathless walking around the house. She was concerned because he was the only driver, but he was so tired that they could not go to the shops.

At the first visit, observations found that his pulse was 59 and irregular; blood pressure (BP) 115/65mmHg sitting, 106/76mmHg standing; oxygen saturation (Sp02) was 98% and his respiratory rate was 16 breaths per minute. He weighed 89kgs (before the Covid pandemic he had weighed 80kgs).

He had bilateral below-knee pitting oedema and chest auscultation found widespread creps. He had three-pillow orthopnea, PND every night and white frothy sputum in the morning. He was drinking approximately three litres of fluid daily and said that he felt too tired to do anything.

What would you do?

The patient's previous eGFR was normal. An ECG was performed due to a new irregular pulse, which confirmed sinus arrythmia but no AF. Bloods were taken (UE/LFT/lipids/FBC/thyroid/HbA1c, NP-proBNP, ferritin, iron, and transferrin sats). He was started on furosemide 40mg OD and a follow-up appointment was booked for five days in order to repeat BP/pulse/UEs.

At his second visit, the blood results were eGFR 45ml/min, NP-proBNP 2311, normal FBC, LFT, thyroid and lipid levels were acceptable and ferritin was 35, normal. However, this is below the level of <100 used in the IRONMAN study and he was NYHA II-III. This was highlighted on the ECHO referral. Observations found that his pulse was 60 regular, BP 101/76mmHg sitting, 99/75mmHg standing, Sp02 98%, and resps 14. He weighed 86kgs, so had lost 3kgs in five days. Mild oedema was noted mid-calf and chest observations showed that he was clear of creps.

His shortness of breath had slightly improved, as well as the orthopnoea — he was down to two pillows. He still felt tired but was keeping himself busy.

Outcome

At review three weeks later, the results of the ECHO confirmed HFrEF 36%. Due to the complexities of his BP and symptoms, a referral was sent to the HF nurse team for their input.

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Useful weblinks

- Managing diuretics NICE 2023: https://cks.nice.org.uk/topics/heart-failure-chronic/prescribing-information/diuretics/
- SGLT2 infographic: https://heartfailure.ca/sites/default/files/chfs_practical_approach_algorithm_sglt2i_0.pdf
- Gout Information: www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/conditions/gout/
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Diabetes digest – the future of diabetes: a focus on GPNs

Here, Callum Metcalfe-O'Shea, advanced nurse practitioner diabetes specialist and co-chair for the Norfolk Health Professionals Diabetes Forum, provides the last part in the diabetes digest series with an outlook on the future of care provision for diabetes in primary care settings. This article explores the current data on diabetes, acknowledging the change in future therapies and the role of diabetes technology in advancing care. The role of the GPN is also examined to highlight the need to recognise their involvement in supporting high quality care.

Primary care is facing many challenges at present, including management of people with both type 1 and type 2 diabetes, which is on the increase, in a variety of patient populations of different ages and ethnicities (Tomic et al, 2022). Diabetes is one of the major long-term conditions currently being managed by general practice nurses (GPNs), who are finding that they have to independently assess and treat multiple complex situations daily (Rodriquez et al, 2022).

The burden of diabetes is ever increasing, with current UK data showing that over five million people are currently estimated to be living with diabetes, with an additional 850,000 patients who are yet to be diagnosed (Diabetes UK, 2022). This highlights the future strain on the general practice workforce, an area where there is an expected decline of GPNs by up to 28% by 2030 due to retirement and burn out (The Health Foundation, 2022). While the outlook may seem bleak, great strides in enhancing treatment options and developing new technologies to help support patients in primary care have been made (Tomic et al, 2022). It is clear that the road to achieving high quality care consistently will not be an easy one, but with appropriate support and training given to our GPN workforce positive patient outcomes can be achieved and maintained (Seidu et al, 2022).

CURRENT ISSUES

Current problems facing GPNs are what will ultimately define the face of enhanced diabetes care (Tomic et al, 2020). The most pressing concern is not just the depleted workforce due to retirement (The Health Foundation, 2022), but also using the time/resources of the current workforce effectively (Shrivastav et al, 2018). GPNs are often having to deal with multiple medication categories, preventing hypo- or hyperglycaemia, and navigating new medical devices for managing diabetes, all while facilitating patient lifestyle changes — and usually in a 10–15-minute appointment slot (Shrivastav et al, 2018). It is not uncommon in general practice that many GPNs are leading or managing multiple long-term conditions alongside women's health, minor illness, and vaccination programmes — impacting on the time to meet the eight care processes accordingly (Tantayotai et al, 2022), namely:

- Haemoglobin A1C (HbA1c)
- Blood Pressure
- Cholesterol
- Serum creatinine
- Urine albumin
- Foot surveillance
- Body mass index (BMI)
- Smoking

(Radwan et al, 2021).

"It is not uncommon in general practice that many GPNs are leading or managing multiple long-term conditions alongside women's health, minor illness, and vaccination programmes — impacting on the time to meet the eight care processes accordingly.

These concerns need to be addressed swiftly to allow GPNs the time to provide in-depth care that is becoming increasingly complex (Tantayotai et al, 2022). It is vital that practice management teams listen to the views of their nursing team, using their input to ask the question: 'what can we do better for our diabetes population?' (Tantayotai et al, 2022). These are just some of the current issues, with other topics including postcode lottery of services available, lack of specialist knowledge and training for the GPN team, current medication shortages, including glucagon-like peptide-1 (GLP-1) therapies, and multimorbidity impacting on treatment options (Tomic et al, 2022). These issues are likely to span across future service delivery — so helping GPNs to manage multiple conditions with diabetes will be crucial to optimising appointment times (Tantayotai et al, 2022).

MULTIMORBIDITY AND DIABETES

Patients presenting with more than one long-term condition while also managing diabetes is common. Indeed, in a cohort study, 88.5% of over a million patients with type 2 diabetes presented with at least two comorbidities (Iglay et al, 2016). Common comorbidities that co-exist with type 2 diabetes due to the metabolic syndrome presentation

Practice point

Think about the current diabetes service you provide — what improvements do you think are needed? How can you answer the question of what can we do better for our diabetes population?

include hypertension, chronic kidney disease and hyperlipidaemia — all requiring pharmacological and lifestyle interventions in combination with diabetes management (Pryke, 2019). This has not gone unnoticed by the current government which identified through its 'major conditions strategy' that multimorbidity is likely to increase in those aged 65 and over by nearly three million people in the next decade (Department of Health and Social Care, 2023). Therefore, now is the time to invest in prevention and primary care treatment to promote optimised therapies for patients with diabetes living with multimorbidity (Department of Health and Social Care, 2023).

GPNs are skilled in managing long-term conditions, but need to ensure that they are aware of the impact that multimorbidity may have on their decision-making processes with certain conditions. For example:

- Respiratory conditions: often these conditions, such as chronic obstructive pulmonary disease (COPD), can result in frequent use of oral steroid therapy, thus destabilising blood sugars causing insulin resistance which increases the risk of steroid-induced diabetes or affects glycaemic control in those with established diabetes (Park et al, 2022)
- Rheumatology conditions: patients experiencing rheumatology-related comorbidities, such as rheumatoid arthritis, are at greater risk of developing diabetes. This is mainly due to changes in the tumour necrosis factors involved in the pathogenesis of the condition causing insulin resistance. Thus, evidence recommends regular HbA1c monitoring, particularly if steroids are used in flare ups (Lillegraven et al, 2019)
- Cancer: it is estimated that one in five patients with cancer (20%) also have diabetes. However, some procedures can induce diabetes, particularly if pancreatic tumours occur, and result in disrupted glucose levels. Again, use of steroids may impact on glycaemic control requiring further insulin or oral therapy titration. Particular chemotherapy medication, such as busulfan, can cause hyperglycaemia, while other therapies can cause diarrhoea and sickness resulting in sick day rule management for patients, particularly those on insulin (Macmillan Cancer Support, 2020).

Photograph: TarikVision/Shutterstock

"Common comorbidities that co-exist with type 2 diabetes due to the metabolic syndrome presentation include hypertension, chronic kidney disease and hyperlipidaemia... ."

These examples indicate the complexity of patients with diabetes that GPNs are reviewing, and this requires extensive assessment and awareness before considering treatment options moving forward (Tantayotai et al, 2022). Future patient presentation, as per Department of Health and Social Care guidance (2023), indicates that these comorbidities will become the new 'normal'. Therefore, GPNs need to be competent and equipped with the correct skills and experience to provide appropriate treatment dependent on the patients' multiple conditions, particularly with advancing practice (Waizinger et al, 2022).

ADVANCING THERAPIES FOR DIABETES MANAGEMENT

It is clear from National Institute for Health and Care Excellence (NICE, 2022) guidance that the use of new oral and injectable therapies as second- or third-line agents in the management of type 2 diabetes indicates how further advancements will continue to alter treatment options available for GPNs. With the second-line introduction of sodium-glucose co-transporter-2 (SGLT-2) inhibitors that eliminate excess glucose through a glucosuric effect by reducing glucose reabsorption in the renal filtrate, improvements in kidney function can now occur, thereby combating two conditions at the same time (Bailey et al, 2022).

Such breakthrough therapies are the face of the new emerging requirement to combat metabolic syndromes to help with hypertension, obesity, and hyperlipidaemia in order to slow cardiovascular disease progression alongside diabetes complications (Bailey et al, 2022).

Practice point

Think about your current patient population — do you feel equipped to manage multiple comorbidities? What training would help you in the future?

Practice point

What therapies are you currently using in practice? Make a list of the pros and cons of the new therapies in correlation to your patient population.

The GLP-1 breakthrough for weight loss, however, has unfortunately been challenged by stock issues, thus impacting on the treatment options available for GPNs for those patients where insulin may not be suitable (Scheen, 2023).

However, new emerging evidence into the use of not just GLP-1 medications but in combination with GIP (both glucose-dependent insulinotropic polypeptides), demonstrate a nod to the future of weight loss in diabetes management (Scheen, 2023). This is because the complimentary actions of both GLP-1 and GIP:

- Stimulate postprandial insulin secretion, helping to regulate blood glucose levels after a meal
- Inhibit glucagon secretion, helping to prevent excess glucose production and release
- Increase satiety in both hypothalamus and slower gastric emptying actions, which helps to control food intake
- Do not produce hypoglycaemia (low blood sugar)
- Do not impact on renal (kidney) or hepatic (liver) function (Scheen, 2023).

While this new medication is yet to be released into the UK market, NICE (2023) has recently approved its use in type 2 diabetes following the same criteria with BMI considerations. These types of emerging therapies will help GPNs shape the future of diabetes care through addressing multiple risk factors of cardiovascular disease while reducing diabetes complications (Tantayotai et al, 2022).

Insulin therapy is also ever changing, with new biosimilar medications available to help address issues of shortages and providing appropriate insulin profiles to meet the needs of a challenging population (Winkley, 2022). This includes examples of ultra long-acting profiles to help manage patients who may require once-daily dosing regimens delivered by community nursing teams — although not a new concept, a concept that will continue to evolve with the use of diabetes technology to promote more optimal monitoring (Winkley, 2022).

Looking to the future, it is clear that further groundbreaking discoveries and therapies will be used to help shape the way we manage diabetes. Although a cure is many years away, Diabetes UK (2023) research is being undertaken to review beta cell function and advance understanding of ways to prevent beta cell exhaustion, preserve insulin secretion, and improve overall management of diabetes.

GPNs are at the forefront of not just using these new advancing therapies, but also in managing complex patients with many multiple long-term conditions and ensuring that other staff are educated and aware of the complications associated with inappropriate therapy use (Tantayotai, et al, 2022).

DIABETES TECHNOLOGIES — THE FUTURE

Diabetes technology can be defined as the use of hardware, devices, and software that people with diabetes use to assist with day-to-day management (ElSayed et al, 2023). The way in which patients can now monitor their blood sugars and deliver insulin has been revolutionised, particularly for younger age groups and children (ElSayed et al, 2023). Insulin pumps can range from sensor-augmented devices to automated insulin delivery systems (ElSayed et al, 2023). While GPNs are not required to fit and initiate pumps, these therapies are ever advancing and GPNs should seek specialist input when necessary from secondary care for support, if required.

Although many diabetes technologies are initiated in secondary care, GPNs will now be aware of the number of patients presenting to clinics with new glucose monitoring devices and should be aware of how they work (ElSayed et al, 2023). Continuous glucose monitoring (CGM) is a device that measures interstitial glucose levels, rather than blood glucose levels, to give trends in the current glycaemic profile (ElSayed et al, 2023). This current solution, such as that posed by the FreeStyle Libre™ device, allows frequent checking of sugars and can alert patients to potential hypo- and hyperglycaemia events more rapidly. It should be noted, however, that this level can often 'lag' behind that of the blood glucose, therefore finger pricking may still be necessary if experiencing hypo symptoms (ElSayed et al, 2023).

Patients have found the benefits of these devices to improve their glycaemic control through trend monitoring and using the designated app as a logbook, to check estimated HbA1c levels and set parameter alarms for safety levels accordingly (ElSayed et al, 2023). The full scope of working and use in every day practice is beyond the scope of this article, but GPNs should ensure that they are aware of manufacturer guidance and where to seek support if necessary.

These technologies are now managed through the support of corresponding apps and electronic guidance that patients can access any time and in any place (ElSayed et al, 2023). Digital healthcare is the future of diabetes provision, and GPNs should be familiar with their local area guidance on what prevention or management apps are available for patient use (Department of Health and Social Care, 2023).

The future for diabetes technology is fast paced and ever-changing, with new emergences of hybrid-closed loop systems to replicate an artificial pancreas ever becoming more available (ElSayed et al, 2023). However, it should be noted that while these technologies are available, it is the role of the GPN to assist people with these

devices and offer support through ongoing education and training (ElSayed et al, 2023). Indeed, GPNs should ensure that patients are aware that the task of self-care for diabetes is not eliminated through technology, and that patients are well placed to use these technologies to support patient management (ElSayed et al, 2023).

CONCLUSION

Overall, the future of diabetes care provision is reliant on upskilling GPNs to provide appropriate care for the ever-increasing complex patient, who is likely to have multiple comorbidities alongside diabetes. Advancement of treatment therapies will serve to support GPNs in their treatment decisions, but again the complexity of patients may mean that future training should be tailored to support this management. Diabetes technologies have been reviewed and while many may fall outside the scope of practice for GPNs, being aware of these technologies plays a vital role in improving the overall management of diabetes for patients.

The future of our diabetes workforce requires a strong knowledge base with an ability to synthesise and utilise appropriate new therapies and technologies to promote standards of care. There will be many challenges ahead, linked to staff shortages and fast-paced technology advancement, but with appropriate support and training GPNs are well served to enhance the standards of care that patients with diabetes receive across primary care organisations. **GPN**

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