The climate crisis is not new, but we have now reached the point where everyone needs to examine their impact on the environment, both at home and at work. We each need to determine what we can do to reduce our individual and collective carbon emissions. For nurses and other health professionals, this includes looking at the carbon footprint of:

- The care we deliver;
- Our transport choices;
- Our product choices;
- The waste we generate.

This article focuses on the work of the National Wound Care Strategy Programme (NWCSP) and how its recommendations may affect environmental sustainability.

The NHS aims to reduce its carbon footprint to net zero by 2040. Wound care uses a large volume of products and incurs considerable travel. The National Wound Care Strategy Programme’s recommendations aim to improve healing and prevent recurrence. Applying these recommendations to clinical pathways aims to reduce carbon emissions. Using reusable products and assessing their life cycle will also improve sustainability.

How can we reduce the environmental impact of wound management?

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The NHS’s carbon footprint

Founded by the United Nations, the Intergovernmental Panel on Climate Change (2022) published a report warning that the window of opportunity to save the planet is quickly closing and that the rise in temperature is now having a direct impact on all living things. It describes the evidence as “unequivocal”, stating that “climate change is a threat to human wellbeing and planetary health”. Climate disasters – such as uncontrollable forest fires, flooding and drought – are becoming more frequent and having a dramatic impact on people, wildlife and the environment.

Currently, the NHS produces 5.4% of all UK carbon emissions (Health Care Without Harm and Arup, 2019). It is estimated that 60% of the NHS’s carbon emissions relate to the use of equipment and consumables. Nurses, as the largest users of these items in the delivery of care, have an essential role to play in changing this (Gallagher and Dix, 2020). The impact of wound products on green issues has been raised as an issue of concern with the NWCSP by many nurses who want to know how they can contribute to reducing carbon emissions and improving sustainability.

The term ‘net zero’ refers to the ambition to ensure the amount of manmade greenhouse gases (such as carbon dioxide) going into the atmosphere is not greater than the amount being removed. Achieving net zero would halt global warming (Net Zero Climate, 2022).

The NHS aspires to be the world’s first net-zero health service; its Standard
Clinical Practice

Discussion

Contract now requires all NHS organisations to have both a sustainability lead and a green plan (NHS England and NHS Improvement, 2020). The NHSE and NHSI (2020) report set two targets:

- To reduce the emissions the NHS controls directly (its carbon footprint) to net zero by 2040, following an 80% reduction between 2028 and 2032;
- To reduce the emissions the NHS can influence (its carbon footprint plus) to net zero by 2045, following an 80% reduction between 2036 and 2039.

Alongside these sustainability aims, the NHS recovery plan (NHSE and NHSI, 2022) requires community service providers to free up capacity to help clear the elective care backlog caused by the Covid-19 pandemic. This should be achieved by avoiding admission to, and supporting early discharge from, acute care (NHSE and NHSI, 2022).

NHS wound care

Large numbers of people receive wound care from the NHS. Estimates made before the pandemic suggested that there were 3.8 million NHS patients with a wound and that this number was increasing (Guest et al., 2020). Wound care uses a large volume of wound-management products and, because it is mostly delivered in the community, incurs considerable travel (Guest et al., 2020).

The NHS’s net-zero aims require each organisation to tackle sustainability (NHSE and NHSI, 2022). When thinking about sustainability in relation to wound care, people often focus on whether a dressing is made of natural or synthetic fibres and how much packaging is used. Although these are important considerations, the issue is much wider. For example, if a wound is healed more quickly, fewer products are used and less travel is required between clinicians and the patient. Improving wound care would, therefore, not only contribute to the NHS’s net-zero objectives but also support its recovery plan (NHSE and NHSI, 2022).

Addressing sustainability through care pathways

The NWCS (2020a) has developed a clinical pathway for lower-limb ulcers, which is based on relevant National Institute for Health and Care Excellence (NICE) and Scottish Intercollegiate Guidelines Network clinical guidelines. The NWCS (2020b) has also produced a business case, which outlines the predicted costs and benefits of implementing its clinical pathway. The business case predicts that implementing the recommendations would improve average healing rates for venous leg ulceration from 32% to 74% at 12 months, as well as halving recurrence rates. This would:

- Release community nursing time spent on wound care by 23%;
- Reduce rates of non-elective hospital admissions;
- Reduce avoidable travel by both patients and staff;
- Reduce the amount spent on wound-care products by 11–23% (NWCS, 2020b).

The NWCS is now confirming the assumptions of its business case in partnership with seven first-tranche implementation sites, one in each NHS region in England. Early results are very encouraging, suggesting the business case’s predictions are achievable and may even underestimate the potential benefits:

“Since implementing and embedding the NWSCS lower-limb recommendations through the use of clinical pathways, we have been able to demonstrate system-wide benefits. Using a wound-management digital system has enabled us to begin to measure our healing rates and infection rates and demonstrate real improvements.”

Lucy Woodhouse, tissue viability and lower limb lead clinical nurse specialist, Wye Valley NHS Trust

Addressing sustainability through product choice

Leg and foot ulcers are the most common types of wounds, accounting for around 37% of all wounds and 71% of total NHS spend on wound care (Guest et al., 2020). Most leg ulceration is caused by venous insufficiency, which should be treated with compression therapy in the form of bandaging and hosiery to promote healing and reduce recurrence (Shi et al., 2021).

New technologies have been developed that provide different compression bandaging systems, compression hosiery kits and compression wraps. For the treatment of venous leg ulcers, there is robust evidence to suggest that two-layer compression hosiery kits and four-layer compression bandaging...
are equally effective in promoting healing. However, ulcers are less likely to recur following treatment with two-layer compression hosiery kits, which are more likely to be cost-effective (Ashby et al, 2014).

Two-layer compression hosiery kits offer many potential advantages for sustainability. Increased use of reusable compression hosiery kits could reduce the number of used bandages entering landfill via the offensive waste stream. Compression hosiery also offers greater opportunities for patients to engage in supported self-management (or with help from their carers). As a result, travel is reduced between clinicians and patients.

However, it is important to note that the environmental impact would not be eliminated by changing from disposable bandaging to reusable compression hosiery kits. There would be an environmental cost of washing the garments, due to the need for water (and fuel to heat it) and detergent. To reduce the carbon footprint of using reusable compression garments, it is important to encourage patients to:

- Wash them at a low temperature;
- Use non-biological detergent;
- Air-dry them – this is also recommended to increase their lifespan.

Early results from the NWCSP’s first-tranche implementation sites suggest such product changes are being made: “Our product data is showing an increase in reusable compression hosiery systems, enabling more patients to have access to supported self-management, with the support being provided by our lower limb specialist nurses. We are also seeing a reduction in our antimicrobial dressing use and overall wound-care product use through implementing the NWCSP evidence-based recommendations.” (Lucy Woodhouse, tissue viability and lower limb lead clinical nurse specialist, Wye Valley NHS Trust)

Two-layer hosiery kits are not suitable for patients with large, heavily exuding ulcers; the VenUS 6 trial identified many patients who could not tolerate hosiery due to the extent of their ulceration in terms of size, leakage and pain (Ashby et al, 2014). The volume of two-layer hosiery kits being used is still much lower than that of compression bandages (Dumville, 2020) but, in line with the NWCSP recommendations, earlier diagnosis and treatment should increase the number of patients who can successfully use two-layer compression hosiery kits as a treatment option.

A compression option that was more recently introduced is compression wraps (adjustable fastened or wrapped compression systems), which are being marketed as an alternative to compression bandaging and compression hosiery. Although these systems have been used for many years in lymphoedema management, it is not yet known whether they are an effective treatment for healing venous leg ulcers. The clinical- and cost-effectiveness of compression wraps is currently being evaluated in a trial that compares them with four- and two-layer bandaging (Dumville, 2020). If they are found to be an effective intervention, they will become a further treatment with sustainability benefits.

### Moving forward

Nurses and other health and care professionals involved in wound management are in a pivotal position to contribute to an environmentally sustainable healthcare system. The key priority must be to reduce the number of people who have leg and foot ulcers; this is in line with NHS initiatives that aim to prevent pressure ulcers and diabetic foot ulcers (NICE, 2014; NICE, 2015). In addition, it is important to consider the life cycle of wound-care products and appliances. They should all be assessed in terms of their:

- Materials (and methods of extraction);
- Manufacturing and packaging;
- Transportation and distribution;
- Use;
- Disposal.

In September 2021, the NHS approved a roadmap to support suppliers to align with its net-zero ambition. This will help reduce the carbon footprint of both suppliers and individual products by 2030 (NHS England, 2021). The NHS also aims to reduce the use of single-use plastics and to increase the reuse and recycling of medical devices in all areas by decarbonising the supply chain (NHS and NHSI, 2020). Carbon footprint data is not yet available for most products, but people responsible for product choice should consider sustainability in addition to efficacy. This includes issues such as the country of manufacture, product content and packaging.

Current nursing students are more likely to agree that the climate crisis and sustainability are important topics in nursing than previous student nurses (Richardson et al, 2021). It is hoped that this generation of student clinicians will challenge current practice by identifying areas that are not aligned to the NHS’s net-zero aspirations, as well as spotting small changes that could make a big difference.

Since committing to achieving carbon net zero, the NHS has reduced its emissions; there is still a long way to go, but “together we can achieve even more” (NHS England, 2022). Addressing sustainability in wound care needs to focus on improving pathways of care to achieve faster healing and reduce recurrence, thereby reducing product use and travel. Implementing the NWCSP’s lower-limb recommendations, therefore, offers a real opportunity to contribute to the NHS’s sustainability agenda and achieving its net-zero goal.