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Introduction

The Royal Pharmaceutical Society (RPS) Greener Pharmacy Guide has been developed to raise awareness and capability of pharmacy staff to reduce the environmental impacts of the pharmacy sector. The scoping review underpinning the development of the guide will be published on the RPS website. This guide supports the rollout of the RPS Greener Pharmacy Toolkit, which hospital pharmacies can use to self-accredit their sustainability status. The guide sets out actions that pharmacy staff and pharmacy settings can achieve to help the NHS meet its net zero targets. The following policy documents highlight the UK healthcare systems’ commitment in reducing their environmental impacts:

- England – Delivering a ‘Net Zero’ National Health Service, 2020¹;
- Wales – NHS Wales Decarbonisation Strategic Delivery Plan, 2021²;

The actions outlined within the guide and toolkit may be embedded into existing policy levers and contracts where appropriate by various NHS stakeholders. The actions listed in the guide and toolkit have been mapped to achieve the United Nations Sustainable Development goals.

Hospital pharmacies can use the guide and toolkit to collect data for certain actions mandated by their Trust’s Green Plan set out in the 2021/22 NHS Standard Contract. A net zero pharmacy may improve the organisation’s reputation and comply with statutory requirements to decarbonise the healthcare sector.

The guide was developed using RPS processes. The guide’s development was led by healthcare professionals with expertise in environmental sustainability with multi-stakeholder engagement and feedback.

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Purpose

The guide outlines key actions to reduce the carbon hotspots of pharmacy services and help pharmacy staff to self-accredit pharmacy settings on their sustainability status using the toolkit. The guide allows all pharmacy staff and settings to:

- Have the knowledge and capability to understand the environmental impacts of healthcare, medicines and pharmacy practice.
- Reduce the environmental impacts of healthcare, medicines and pharmacy practice to meet the NHS’s net zero commitment.
- Certify their sustainability credentials of pharmacy settings to show how they are reducing their environmental impacts.
- Estimate the impact of actions taken in the toolkit to allow for quantification of carbon savings.
- Raise awareness to patients and the wider public of the environmental impact of healthcare, medicines and pharmacy practice and the interdependency with health.

Scope

The guide mainly covers NHS hospital pharmacy services, whether provided internally or outsourced, and are applicable across the full range of service providers in the NHS and independent sector. They may be applicable in across other services:

- Hospitals (acute and non-acute)
- Mental health
- Community services
- Prison
- Hospice
- Ambulance settings
RPS Greener Pharmacy Guide

The guide contain six overarching domains:

1. People
2. Clinical Practice
3. Travel
4. Resource Use
5. Information and communications technology (ICT)
6. Operations and strategies

This guide is less focused on clinical pharmacy practice and more about empowering pharmacy staff and decarbonising pharmacy settings. Each domain in the toolkit will list various co-benefits of the actions taken which are appealing to the pharmacy sector such as time saving, cost saving, improving health and wellbeing of patients and staff as well as waste reduction.

Using the guide

There are three levels under each domain with actions at each tier that pharmacy staff and settings can accomplish to progress towards the target goals associated with each level. Using the toolkit on the web platform, this guide can help hospital pharmacies work consistently towards decarbonisation and display their accreditation publicly to show their progress towards a net zero pharmacy. It is recommended that the actions listed in the guide and toolkit are shared between as many pharmacy staff possible to complete according to timelines set by the task group.

<table>
<thead>
<tr>
<th>Level</th>
<th>Action</th>
<th>Target achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Easy, few actions, low data input</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Moderate, more actions, more data input</td>
<td>70%</td>
</tr>
<tr>
<td>3</td>
<td>Hard, few actions, high data input</td>
<td>50%</td>
</tr>
</tbody>
</table>

Associated resources on the RPS website provide links to legal and regulatory frameworks, international standards, core standards required by systems regulators, as well as signposting to more detailed guidance, resources and support tools. Individuals and organisations are encouraged to submit examples of good practice to RPS as well as further feedback on the guide (support@rpharms.com).
Domain 1: People

All staff in the healthcare system play a crucial role in helping the NHS meet its net zero ambitions. They directly influence the healthcare emissions, can educate colleagues, patients and the wider public about environmental sustainability, help innovate technologies to address inefficient practices and become role models for others to follow. Their collective efforts help mitigate the impacts of climate change and promote a healthier sustainable future for all.

Outcome: The listed actions in this domain ensures the whole pharmacy team is informed and aware of the potential impacts of climate change and are equipped with knowledge and skills to implement sustainable changes in their professional and personal lives. This can also result in cost savings, promotion of good health, and sharing of good practice to improve pharmacy services.

Level 1:

Pharmacy staff regularly engage patients and their carers in conversations and initiatives related to disease prevention and environmental health.

The COVID-19 pandemic has brought to light the true cost of high levels of underlying chronic diseases and their associated risk factors, accentuated health inequalities, and showed the societal benefits of universal good health. Community pharmacies are uniquely placed in the heart of communities to promote public health services such as weight management, smoking cessation, travel and flu vaccinations. Through shared-decision making and person-centred care, pharmacists can reduce overprescribing by tackling the wider social determinants of health. Hospital pharmacy staff should be able to opportunistically signpost to community pharmacies or other local services and empower patients with the knowledge to better manage their own health.

Suggested e-learnings:
- Make Every Contact Count programme
- CPPE – Healthy Living Pharmacies

Pharmacy staff have undertaken a continuous professional development (planned or unplanned), peer discussion or reflective record relating to environmental sustainable healthcare.

This can form part of General Pharmaceutical Council (GPhC) registered pharmacy staff’s annual revalidation. Some recommended courses are listed below:
- All Our Health Programme
- Building a Net Zero NHS
- Centre for Sustainable Healthcare (CSH) courses
- CPPE Environmental Sustainability Gateway
- Greener NHS Carbon Literacy or Greener NHS training hub
- Sustainability Leadership for Greener Health and Care Programme
**Level 2:**

Pharmacies have included environmental sustainability and net zero objectives in all pharmacy job descriptions, job adverts, induction, interviews, governance and culture.

Pharmacy staff have joined a greener pharmacy network.

Joining like-minded individuals in the same profession who are passionate about the subject can foster a sense of community and support, allow learning from one another, sharing of ideas and collaboration on initiatives. Examples of green pharmacy networks are listed below:

- Pharmacy Declares
- Sustainability in Pharmacy Education (SPE) Group
- Greener PCPA
- Centre for Sustainable Healthcare (CSH) Pharmacy Sustainability Network
- Healthcare without Harm Pharmacists for Greener Healthcare

Pharmacy staff have read the RPS Sustainability Policies and openly pledge a sustainable action in the RPS Climate Change Charter which is displayed in their pharmacy settings or on their social media accounts.

By participating, you can help raise awareness about the urgency of climate change, its impacts, and the actions individuals and societies can take to address it. An example of a simple pledge could be using reusable cups and avoiding disposable single-use cups for hot drinks.

Pharmacy staff are kept up to date with the latest healthcare environmental sustainability news.

The climate-health sphere is ever changing in light of new research and innovation. One member of staff in the pharmacy setting can sign up to the relevant newsletters and be responsible for forwarding them onto the rest of the pharmacy team. The following are some recommended green newsletter subscriptions:

- Greener NHS or Greener NHS Knowledge Hub
- Centre for Sustainable Healthcare (CSH)
- Green Health Wales
- Greener Practice
- The Pharmaceutical Journal Green Pharmacy
- UK Health Alliance for Climate Change

Pharmacy staff have organised workplace social events that promote the environment.

This can encourage pro-environmental behaviours and improve individual’s relationship with nature. The event can also be organised with local communities or healthcare professionals to foster a sense of community and encourage people to get involved in eco-friendly initiatives. E.g., beach clean, tree planting, walking or hiking

Pharmacy staff have participated in environmental campaigns to raise awareness.

By participating in environmental campaigns, individuals and organisations contribute to the collective effort to protect and conserve the environment. Education and awareness raising through campaigning can lead to behaviour change as people become more informed and can inspire individuals to engage in environmental advocacy. E.g., Clean Air Day, No Meat May, antibiotics amnesty campaigns or World Environment Day.
**Level 3:**

| Pharmacy staff have participated in a SusQI project. |
| Pharmacy staff are encouraged to undertake Sustainability in Quality Improvement (SusQI) courses to successfully implement their SusQI projects and share good practice with other organisations. |
| Pharmacy staff have organised local, regional or national teaching, webinars or conferences to raise awareness of sustainable healthcare. |
| These events can be organised sustainably using Pharmacy Declares’ Sustainable Conference Checklist. |
| Sustainable healthcare has been embedded into existing pharmacy training programmes within the department. |
| Pharmacy staff have applied for or collaborated with local organisations to secure funding for environmental sustainability research projects or pilot studies. |
| Some green funding resources are listed below: |
| • Healthier Futures Action Fund |
| • Small Business Research Initiative Healthcare Funding |

**Domain 2: Clinical Practice**

Medicines account for 25% of the NHS’s carbon footprint in England (2% from anaesthetic gases and 3% from inhalers) and the unintended wider ecological impacts of medicines use should be mitigated where possible.

**Outcome:** The listed actions introduce measures pharmacy staff can take to reduce the environmental impacts of clinical pharmacy practices and pharmaceuticals through shared-decision making and personalised care. It can present cost savings, improve patient outcomes, reduce unnecessary waste and increase pharmacy productivity.

**Level 1:**

| Raise awareness among all healthcare staff and inform patients to avoid pouring any pharmaceuticals or chemicals down sinks, toilets or drains. Enforce messaging of returning all unused or unwanted medications to local pharmacies for disposal. |
| Medications include inhalers, topical products, eye, ear or nose drops, sprays, patches and injections. Any returned medicines or medical devices due to adverse effects or incidents in England and Wales can be reported via the usual Yellow Card site. All pharmacy staff should also understand the reasons why unwanted and expired antibiotics should be returned to the pharmacy for safe disposal and the adverse effects on the environment and antimicrobial resistance (AMR) when antibiotics are disposed of in domestic waste. |
Implement environmental sustainability messaging in patient communication. E.g., pharmacy drug labels, pharmacy bags, discharge or outpatient letters, text messaging to patients or the pharmacy website. See Meds Disposal Campaign.

Routinely ask patients to check their medications in pharmacy bags before leaving the pharmacy to prevent return of incorrect or unwanted items.

Current regulatory rules prevent medicines to be reused once they have left the pharmacy settings. It is therefore useful to check with patients or carers upon collection of their medications whether all items are correct and needed before they leave the pharmacy.

Pharmacy settings have displayed environmental sustainability messaging (e.g., RPS Greener Pharmacy accreditation certificate, posters or leaflets) visible to patients and wider staff members to raise awareness.

Computer screensavers or notice boards in pharmacy settings can be utilised to communicate relevant messaging. Staff tearoom area could display message such as avoiding over-filling kettles when making hot drinks to save energy.

**Level 2:**

Encourage patients to bring their medications from home into hospitals.

Work with colleagues in ambulance trusts to increase use of ‘green bag’ schemes for patients own drugs to be brought into hospital. This prevents staff from reordering repeat medications, particularly for short-stay patients, which are almost always subject to changes due to acute illness. Hospital staff can also assess patient compliance with their medications and optimise treatment accordingly. See: RPS guides on medicines adherence, RPS medicines reconciliation and medication history, RPS medicines review, CPPE medicines reconciliation, CPPE medication review

Use patient’s medications from home during hospital stay.

Hospital staff should ensure patients’ medications from home are transferred to the base wards with them and attempt to locate them if reported missing. Instead of dispensing new supplies of all medications from inpatient pharmacy for all new patients admitted, hospital staff should perform ward bedside medication locker checks and utilise patient’s own drugs where possible.

Promote timely intravenous to oral medication switch.

Although the life cycle analyses of most medications are not widely available, the carbon footprint of intravenous medications is estimated to be higher than oral medications due to primary packaging materials, plastic waste, equipment for administration and their disposal. This early review of switching from intravenous to oral is already encouraged in antimicrobial stewardship programmes and potentially allows for earlier hospital discharge.

See: Oral, in place of intravenous, paracetamol as the new normal for elective cases

Pharmacy staff are able to optimise respiratory care to reduce carbon footprint related to inhalers and improve respiratory disease outcomes.
Pharmacy staff can check inhaler techniques and promote safe and environmentally friendly disposal of all unwanted and used inhaler devices by engaging in discussions with all patients, their carers and/or representatives. Pharmacy staff are able to recognise short-acting beta-agonists (SABA) overuse via repeated prescribing (>6 SABAs per year) or emergency requests and refer patients back to their clinicians for review. Further resources:

- Greener Practice High Quality and Low Carbon Asthma Care toolkit
- Asthma + Lung UK
- Greener Practice Guide to reducing the carbon footprint of inhaler prescribing
- NHS Wales inhaler carbon footprint reports
- MIMS Inhaler carbon emissions
- NICE Asthma Patient Decision Aid
- CPPE - Respiratory

Pharmacy staff should clearly and promptly communicate any changes of patient’s medications on their discharge to primary care staff.

Utilise the Discharge Medicines Service referral to avoid dispensing medications that are stopped, improve patient outcomes, prevent harm, and reduce readmissions. See: RPS guide on getting the medicines right and counselling people on the use of medicines; CPPE – Transfer of Care

Pharmacy staff can signpost to vegan-friendly medication options.

Some patients may choose to take medications that are vegan-friendly, therefore pharmacy staff should be aware of existing resources to signpost patients:

- What are the general considerations for vegan patients?
- Which E-numbers and additives are from animal origin?

Optimise access to virtual wards or outpatient parenteral antimicrobial treatment (OPAT) services to support low carbon care pathways and care closer to home for patients with infections and other complex care needs.

Pharmacy staff are able to teach patients how to swallow solid drug formulations.

Champion the delivery of the KidzMed programme. Solid drug formulations have longer shelf lives (reducing liquid medication waste), usually do not require refrigeration (larger CO₂e associated with cold-chain medicines), easier to transport and are more readily stocked at pharmacies (reducing patient travel when attempting to source liquid medication from multiple pharmacies).

Prescribers should also consult evidence-based literature on the Special Pharmacy Service website, or the NEWT guidelines, for options to crush or dissolve tablets and prescribe alternative formulations (e.g., dissolvable tablets).

Pharmacy staff knows how to signpost patients to health and wellbeing coaches, social prescribers or link workers through their GP practices for a range of local, non-clinical services.

E.g., volunteering in charities, arts activities, group learning, gardening, cookery or walking provided by voluntary or community organisations. This holistic approach in addressing social determinants of health may reduce future need of healthcare access and engage communities with their local environment. See: Green social prescribing.
Pharmacy staff are aware of Trust policy on when to wear personal protective equipment (PPE) for pharmacy clinical service provision.

A project at Great Ormond Street Hospital (GOSH) reduced glove use by around 36,608 pairs each week, compared to before the campaign began, equivalent to saving around £1,000, with plastic use reduction of 21 tonnes. See: Gloves Off Campaign and How to reduce glove use.

Stocking smaller packaged medicines in clinical settings (e.g., vials or prefilled syringes) that reflect clinical usage patterns can reduce pharmaceutical waste.

An American surgical suite eliminated 50 and 100 mL bottles of propofol from the formulary, replacing them with 20 mL bottles, and reduced propofol waste from 29.2 mL/day/bin to 2.8 mL/day/bin.

**Level 3:**

Eliminate desflurane use.

Desflurane has a global warming potential over 100-year period (GWP100) of 2540 compared to sevoflurane of 130. Desflurane also has an atmospheric lifetime of 14 years compared to sevoflurane of 1.1 years. See further information by the Association of Anaesthetists.

See The Desflurane Reduction Project on CSH. In England, the use of volatile anaesthetic gases in each Trust is viewable on the Greener NHS Dashboard.

Report the amount of desflurane stock left in all hospital sites in the toolkit to calculate CO₂e.

Pharmacy staff are represented on Medical Gas Committee work to mitigate nitrous oxide (N₂O) waste.

N₂O has a global warming potential over 100-year period (GWP100) of 298 and an atmospheric lifetime of 110 years. The Nitrous Oxide project was founded in NHS Lothian by pharmacist Alifia Chakera. In England, the use of volatile anaesthetic gases in each Trust is viewable on the Greener NHS Dashboard. Further resources:

- N₂O Toolkit on Future NHS platform
- Driving down embedded emissions from medical nitrous oxide
- Nitrous oxide could be harming people as much as the planet

Conduct a N₂O waste audit and report the total amount of N₂O waste in the toolkit to calculate potential CO₂e to be saved.

Pharmacy pursues a low-carbon drug formulary and inventory.

Pharmacies could include an environmental weighting for drug formulary considerations when approving new drugs in Trusts or through joint formularies across a region or ICS in England. Formulary applications could ask for CO₂e data or ecotoxicology information of medicines and medical devices.

Enrol pharmacy settings in available recycling schemes.

Successful implementation of these schemes is highly dependent on broader recognition of their accessibility and should therefore be actively promoted locally.

- Inhaler recycling
- Medicine blister pack recycling
• Novo Nordisk PenCycle

Audit the amount of unused or expired medicines.

Conduct a medicines waste audit using the RPS waste medicines audit toolkit.

Optimise multi-compartment compliance aids (MCAs) sizes to reduce plastic use.

Also known as pill organisers, pill containers, dosette boxes, nomad trays, pill cases or pillboxes.

Patients on a twice-daily medication regime could receive a 14-grid compartmental box rather than the standard 28-grid compartmental box to minimise plastic use.

The need for compliance aids should regularly be reviewed by pharmacy staff, and the use of medication reminder charts or digital reminders for drug administration at home could be promoted with a view to eliminate plastic use.

Reusable compliance aids could be encouraged, provided they can be quality-assured.

Further resources: RPS guide on MCAs.

Report the number of MCAs in all sizes ordered the past year in the toolkit to calculate CO₂e.

### Domain 3: Travel

Road travel from patients, visitors, staff and NHS suppliers account for 14% of the healthcare system’s total emissions in England. The use of technology can foster networking opportunities in larger geographical areas, reduce unnecessary travel delays or disruptions that risk business continuity or exposure to health-related concerns, e.g., disease outbreak.

**Outcome:** This domain introduces measures pharmacy teams can take to promote active travel and reduce unnecessary business travel that saves both time and costs. It promotes cleaner air for all and improves physical and mental health for staff and patients.

### Level 1:

**Pharmacy staff promotes active travel.**

Walk, cycle, car share, park and ride or take public transport to work. Pharmacy staff should explore their eligibility for discounted travel passes for public transport. Some hospitals offer cycle to work scheme where pharmacy staff can purchase bicycles or cycling equipment through salary sacrifice arrangements, resulting in savings on income tax.

It is understandable that active travel might not be ideal for some, and they should be offered priority parking spaces, e.g., mobility issues, working out of hours in areas with poor public transport systems or deemed unsafe to walk alone or have caring responsibilities.

**Pharmacy staff utilises virtual meeting platforms to conduct meetings or educational events remotely, where possible, to reduce unnecessary travel.**

Staff should have access to digital devices with virtual platforms such as Teams or Zoom and good network server connection to facilitate this.

**Pharmacy staff actively supports patients in navigating through the complex health and social care systems and overcoming barriers to access healthcare services.**
Pharmacy staff should communicate their opening hours to all staff at their hospitals to avoid patients being sent to the pharmacy out of hours to collect a hospital-only prescription. These patients may be out of the area and not able to return for their prescription, resulting in further workload downstream, e.g., patients contacting NHS 111 or their own GPs for the same prescription or the hospital pharmacy transporting the medication out to patients.

**Level 2:**

<table>
<thead>
<tr>
<th>Availability of greener and active travel amenities in pharmacy settings are widely promoted to patients and visitors to encourage low carbon travel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.g., Cycling or bus routes, bus or rail timetables or walking times to pharmacy settings are displayed in the pharmacy settings or the pharmacy’s website.</td>
</tr>
<tr>
<td>Pharmacy staff are supported to work from home.</td>
</tr>
<tr>
<td>In line with service provision where possible, pharmacy staff should be allowed to work from home and have flexible hybrid working arrangements to reduce unnecessary travel.</td>
</tr>
<tr>
<td>Pharmacy has policy in place to support sustainable travel of pharmacy staff.</td>
</tr>
<tr>
<td>Pharmacy staff could be granted leave to allow for sustainable travel to work-related events, e.g., a longer train journey rather than short flights for short-haul trips. Pharmacy staff could also be allowed flexible starting and finishing times to catch public transport at a specific time or get showered or changed after cycling.</td>
</tr>
<tr>
<td>Switch to greener fleet.</td>
</tr>
<tr>
<td>Consider cargo bikes, smaller, hybrid or electric vehicles to deliver medications or conduct home visits for any clinical services offered by pharmacy. This should be discussed with Trust’s estates and facilities team.</td>
</tr>
<tr>
<td>Pharmacy staff can participate in Trust consultations to offer salary sacrifice vehicle purchase scheme (e.g., NHS Fleet Solutions) for electric vehicles, install more electric vehicle charging points, fit bike racks or bike sheds, have an onsite bicycle puncture repair kit and pump, and shower facilities or changing rooms for staff.</td>
</tr>
</tbody>
</table>

**Level 3:**

| Conduct an audit of pharmacy staff travel. |
| Conduct an audit of patient travel. |
| Conduct an audit to optimise pharmacy business travel routes. |
| Please see the suggested travel audit form in Appendix 1. Pharmacy staff can choose to adapt the format but retain the key questions listed to calculate travel CO₂e to report on the toolkit. Ideally, the data from the audit should cover the span of at least one month. Results from survey can be utilised in future policy and decision making processes with local councils or authorities to improve public infrastructure to promote greener travel. Pharmacies should plan and optimise routes of medication deliveries or home visits localised to an area where possible. Reduce unnecessary hospital deliveries between sites. |
| Offer remote consultations where appropriate, allowing patients to consult pharmacists remotely without the need to travel. |
The rollout of virtual wards delivering care to patients in their own homes has been shown to reduce accident and emergency presentations and hospital admissions, which are linked to large CO\textsubscript{2}e. During the COVID-19 pandemic, many face-to-face outpatient appointments were switched to telephone consultations.

**Domain 4: Resource Use**

**4.1. Energy and water**

Energy production and consumption are the largest sources of global greenhouse gas emissions. Combustion of fossil fuels also emits air pollutants exacerbating the issues of global air pollution which is harmful to health. Resources to create this domain include RCGP Net Zero Hub, TUC Go Green at Work, and UK Business Climate Hub.

Purifying, storing, heating and supplying of water to pharmacy settings followed by sewage processing is energy-intensive and attached with large CO\textsubscript{2}e. NHS staff are under legal obligations to conserve water under the Water Act 2003.

**Outcome:** This sub-domain introduces measures which pharmacy teams and settings can take to improve energy efficiency. This will reduce running costs for pharmacy settings, create a favourable working environment (neither overheated nor overcooled), and support people who might be sensitive to temperature changes (e.g., hypothyroidism, menopause). Actions in this sub-domain also promote water conservation, reduce water consumption and prevent pharmaceutical pollution of water sewage systems.

**Level 1:**

Pharmacy staff keeps radiators free from obstruction and turn off air conditioning if window(s) or door(s) are open.

Obstructed radiators reduce heat distribution and lead to uneven heating in a room. The heating system may need to run longer or at a higher temperature to maintain the desired room temperature as a result using more energy. If the room is overheated, turn down the thermostat instead of opening the doors or windows to cool the room down. Hot outdoor air can flow into the cooled indoor spaces causing the air conditioner to use more energy to maintain the desired temperature. If the room is overcooled, turn up the thermostat instead of opening the doors or windows to heat the room up.

Ensure all controls and switches in pharmacy settings are clearly labelled.

This helps pharmacy staff to switch on or off lights or devices in pharmacy settings without unnecessarily wasting energy.

Pharmacies optimise fridge or freezer spaces without overloading them and reduce the number of unnecessary fridges or freezers running in the department.

This should be included in the Trust’s cold chain medicines policy if applicable. See Specialist Pharmacy Services (SPS) guidance on using, monitoring, maintaining fridges and freezers.
### Level 2:

| **Pharmacy staff knows how to report leaks or water waste promptly.** |
| Regularly inspect and repair leaks in plumbing systems, taps and toilets in pharmacy settings. Small leaks can waste significant amounts of water over time. |
| **Pharmacy staff manually switches off or set a timer for all heating, cooling and electrical devices in pharmacy settings to match operating hours.** |
| E.g., lights, monitors, desktops, laptops, printers, scanners, photocopiers, automated dispensing machines, prescription endorsement machine. Set all electronic devices to enable standby, eco-friendly or low-power modes, and to power down after several minutes of inactivity. Reduce computer monitor brightness to save energy. Consider adjusting the timer for clock changes and bank holidays. For Trusts with aseptic units, air handling unit could be powered down overnight. |
| **Ensure responsible Trust staff are inspecting and maintaining the heating, ventilation and air conditioning (HVAC) systems, boilers and electrical items in pharmacy settings.** |
| Trusts are eligible for funding via the [Public Sector Decarbonisation Scheme (PSDS)](https://www.gov.uk/government/news/public-sector-decarbonisation-scheme) for heat decarbonisation and energy efficiency measures. Funding can be used to switch gas boilers in pharmacy settings to heat pumps, electric (and infrared) heaters, solar thermals, or district heating systems. Any upgrades to existing facilities should adhere to the [NHS Net Zero Building Standard](https://www.netzero.nhs.uk/). |
| **Ensure all windows and doors in pharmacy settings are inspected and maintained, and doors in pharmacy settings are draught-proofed to prevent heat escaping.** |
| All doors and windows should be able to open and close properly. Closing curtains and blinds overnight can help insulate the pharmacy settings from unwanted heat gains or losses. Consider installing double-glazed or triple-glazed windows to reduce heat escaping, external noise and condensation buildup inside windows adhering to the [NHS Net Zero Building Standard](https://www.netzero.nhs.uk/). Windows: This may not be applicable for pharmacy settings located in basements. |
| **Switch all lighting in pharmacy settings to light-emitting diode (LED) bulbs.** |
| Suggestion for the Trust’s estate and facilities team to upgrade from conventional lighting to LED bulbs. LED bulbs use less energy, last much longer and reduce maintenance costs compared with regular bulbs. |
| **Install motion sensor or timer-controlled lights in low-use areas.** |
| Suggestion for the Trust’s estate and facilities team. E.g., toilets, changing rooms, offices and education rooms. |
| **Install tap flow restrictors in pharmacy settings.** |
| Suggestion for the Trust’s estate and facilities team. The amount of water saved will depend on the specific restrictor and pharmacy staff’s habits of water usage. |

### 4.2. Waste and recycling

To address the environmental issues associated with healthcare waste, it is crucial to implement proper waste segregation, collection, treatment, and disposal practices in healthcare facilities. Appropriate waste segregation has been a legal requirement since 2005
and, therefore, enforceable by the Environment Agency. For further information on management and disposal of healthcare waste, please see HTM 07-01.

**Outcome:** This actions in this sub-domain ensure pharmacy teams follow the waste hierarchy – eliminate, reduce, reuse, recycle or recover and dispose. This presents opportunities for cost savings, safer working practices and time saved handling waste.

**Level 1:**

| Multiple bins for different waste streams are available in pharmacy settings and all bins are appropriately labelled for waste segregation. |
| Pharmacy staff should avoid contaminating recycling bins as it may render the whole bin unrecyclable. Use clear visual signage with images that reflect the waste streams to help pharmacy staff segregate waste for disposal – landfill, clinical waste, sharps, cytotoxic, recycling, confidential waste or compost. |

**Level 2:**

| Recycle or refill printer cartridges. |
| Suggestion for the Trust’s estate and facilities, ICT teams. Recycling printer cartridges reduces the need for new cartridges to be manufactured, conserving valuable resources such as plastics, metals, and energy. Recycling helps reduce the amount of electronic waste (e-waste) and its associated environmental impact. Refilling printer cartridges is often cheaper than buying new ones. Refilling cartridges eliminates the need for packaging materials associated with new cartridges, reducing waste and environmental impact. |
| Reduce and recycle paper. |
| Paper recycling should take into account its content, which might be confidential. Reduce unnecessary printing and set default printing to double sided for all printers in pharmacy settings. |
| Eliminate avoidable single-use plastic. |
| E.g., cups, plates, cutlery, bottled drinks, bags or envelopes with plastic windows. Pharmacy staff should use refillable bottles, cups and reusable cutlery. Check with patients or carers whether they have oral syringes, measuring spoons or cups at home to accurately measure the correct dosage of liquid medications instead of issuing them automatically. Remove the plastic measures that come with packaged medications to store in pharmacy settings for future use after ensuring they are not designed for specific products only. See **Tackling pharmacy’s reliance on single-use plastic** and **Environmental Protection (Single-use Plastic Products) (Wales) Bill.** |
| Install mains-fed water coolers instead of bottle-fed water coolers in pharmacy settings. |
| Mains fed water coolers eliminate the need for single-use plastic bottles, which contribute to plastic pollution. Over the long term, mains fed water coolers are more cost-effective than single-use bottle coolers and there is no risk of running out of water. Mains fed water coolers have lower CO2e as... |
the production, transportation, and disposal of plastic bottles contribute to greenhouse gas emissions.

Upcycle or recycle any existing furniture or equipment in pharmacy.

Hospital staff should contact estates and facilities team to find out if existing routes for donation or recycle is already in place. E.g., Habitat for Humanity GB, reuse network

Use electronics with rechargeable batteries and avoid single-use ones.

This will save pharmacy the cost of replacing batteries long-term and reduce e-waste. Pharmacy staff should be aware not to dispose of any batteries in general waste.

Level 3:

Implement quality-assured systems to reuse sharps and cytotoxic bins.

E.g., one Sharpsmart reusable waste container replaces over 800 disposable plastic containers and 800 plastic bags being sent to landfill.

Although time consuming, conduct a waste audit to quantify the amount and types of waste from pharmacy settings and subsequently set a target for reduction of carbon hotspots.

4.3. Procurement and Supply Chain

With a global focus on sustainability, suppliers that do not have net zero ambitions or carbon reduction plans may face reputational risks and market disadvantages. For England, please see Greener NHS Net Zero supplier roadmap on using approved suppliers and applying the social value weighting for procurement tendering and contracts.

Outcome: This domain introduces measures pharmacy teams can take to procure items sustainably. This can result in cost savings where businesses may be exempt from some taxes when purchasing energy-efficient technologies. It can also reduce extraction of natural resources, promote health and optimise treatments for patients.

Level 1:

Use recycled paper trademarked by the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC).

FSC and PEFC certifications ensure that the paper comes from forests managed in an environmentally responsible and sustainable manner. By choosing FSC or PEFC certified paper, you are supporting forest conservation efforts.

Pharmacy staff encourages patients to adopt a meat-free and plant-forward diet, which prevents and treats chronic diseases, as well as supports planetary health.

Catered events hosted by pharmacy staff should take this into consideration.
The Eat Lancet Report outlined the environmental limits of food production, stressing the need to reduce greenhouse gas emissions, land use, and water consumption associated with agriculture. Plant Based Healthcare Professionals is a group founded by a UK Haematology Consultant dedicated to providing education and advocacy on whole food plant-based nutrition for prevention and treatment of chronic disease. See: CPPE Nutrition, medicines and myths: evolution of pharmacy practice.

**Level 2:**

<table>
<thead>
<tr>
<th>Pharmacy staff purchases Fairtrade-certified tea, coffee and sugar for communal break rooms or displayed a poster explaining the benefits of buying Fairtrade.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairtrade ensures that producers, often in developing countries, receive fair wages and work in safe conditions. Fairtrade products are produced using environmentally sustainable practices which are typically traceable whilst not compromising on their qualities.</td>
</tr>
<tr>
<td>Pharmacy staff are encouraged to bring their own lunch to work and avoid buying plastic-packaged food or be limited to food choices on sale that are not sustainable.</td>
</tr>
<tr>
<td>Preparing meals at home typically involves less single-use packaging and waste compared to takeout or restaurant dining. It also saves time traveling to a restaurant, waiting in lines, or waiting for food to be prepared.</td>
</tr>
</tbody>
</table>

**Domain 5: Information and communications technology (ICT)**

ICT infrastructure including data centres, servers, and network equipment consumes a significant amount of energy that generates greenhouse gas emissions to sustain ICT operations. Technological advancement also leads to generation of e-waste which can lead to environmental contamination and health risks. Climate change can disrupt ICT infrastructure through extreme weather events which affects delivery of patient care.

**Outcome:** This domain introduces measures pharmacy teams can take in their professional and personal lives to minimise the negative impact of ICT operations on the environment. It also suggests how digital technologies can be utilised to provide cost and time savings, improve operational and pharmacy staff efficiency.

**Level 1:**

<table>
<thead>
<tr>
<th>Pharmacy settings have contingency plans for ICT infrastructure failure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>During extreme weather events where ICT infrastructures could fail, leading to pharmacy staff's inability to access electronic patient records, prescribing or dispensing systems, the pharmacy should have contingency plans to ensure business continuity.</td>
</tr>
</tbody>
</table>
**Level 2:**

<table>
<thead>
<tr>
<th>Pharmacy staff reviews, deletes or avoids sending unnecessary emails and unsubscribed from unwelcome electronic newsletters and marketing mailing lists.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disorganised inboxes may result in pharmacy staff not receiving vital communications in a timely manner. One standard email = 4 g CO₂e; one email with attachments such as PDFs or links = 50 g CO₂e; One spam email = 0.3 g CO₂e.</td>
</tr>
<tr>
<td>Pharmacy utilises digital apps or software to create and update pharmacy staff departmental rota without paper copies.</td>
</tr>
<tr>
<td>Set the default search engine on all computers in pharmacy settings to Ecosia.</td>
</tr>
<tr>
<td>Suggest the Trust's ICT team install the search engine that plants trees for every search.</td>
</tr>
<tr>
<td>Delete unwanted files as they are stored in data processing centres with high-energy carbon footprints, including any files stored in the cloud or Microsoft OneDrive.</td>
</tr>
<tr>
<td>The storage and maintenance of digital data including online files and documents rely on data centres that require a substantial amount of electricity to power servers and cooling systems. Reducing the volume of unnecessary data can help lower energy consumption in data centres, decreasing the carbon footprint associated with data storage. Set files to auto-delete at the end of retention period.</td>
</tr>
<tr>
<td>Keep equipment free from obstructions and clean filters and fans to prevent overheating and possible failure, especially during heatwaves.</td>
</tr>
<tr>
<td>Many ICT devices such as computers, servers and networking equipment generate heat during operation. Proper airflow is essential to dissipate this heat and prevent overheating. Obstructed equipment can impede airflow, leading to higher operating temperatures and a greater risk of hardware failures. It can reduce the lifespan and reliability of ICT equipment leading to unexpected system crashes and downtime.</td>
</tr>
<tr>
<td>Regularly update the pharmacy department’s distribution lists to cascade information to those who need them as this is also an information governance issue.</td>
</tr>
<tr>
<td>One standard email = 4 g CO₂e; one email with attachments such as PDFs or links = 50 g CO₂e</td>
</tr>
<tr>
<td>Pharmacy staff aims to meet the NHS’s ambition to eliminate paper at the point of care and support its digital evolution.</td>
</tr>
<tr>
<td>Patients should be given the option to opt out of receiving postal letters for appointments, e.g., anticoagulation service reminders. Switch to digital records where possible to minimise paper audit trails. e.g., private prescription records, controlled drug registers, e-prescribing.</td>
</tr>
<tr>
<td>Implement circular devicing.</td>
</tr>
<tr>
<td>Buy remanufactured or refurbished devices or extend the lifetime of devices are some examples of this as recommended by Digital Net Zero, Concept Management provide free of charge Waste Electrical and Electronic Equipment Compliant computer disposals, IT asset disposal, and secure onsite data.</td>
</tr>
</tbody>
</table>
**Level 3:**

Invest in ICT infrastructure in pharmacy settings.

Contact Trust’s ICT team to upgrade hardware, software and Wi-Fi to reduce pharmacy staff’s time spent on inefficient devices and increase pharmacy productivity. Procure all-in-one equipment to allow the removal of multiple old equipment that uses more energy (e.g., multifunction printers to remove scanners, photocopiers, fax machines).

Utilise digital technologies, such as automated dispensing machines, to track and manage drug inventory levels, ensure optimal stock rotation and reduce the likelihood of medicine waste. Review reasons for overstocking and near-expiry checking practices.

**Domain 6: Operations and strategy**

Pharmacies should incorporate environmental sustainability into pharmacy staff’s workplan, strategic and operating plans and budgets to reflect its commitment to net zero. It supports the UK’s transition to a greener economy by creating green jobs and upskilling pharmacy staff in quality improvement work.

**Outcome:** This domain puts policies and strategies in pharmacies to help the NHS achieve net zero and enhance community resilience to the impacts of climate change. When a pharmacy setting is clean, safe, caring and innovative, it also improves staff retention, morale and productivity.

**Level 1:**

Pharmacy has nominated a sustainability lead and recognises sustainability champions in pharmacy settings.

Sustainability leads or champions can be the responsible person for completing the toolkit and track their pharmacy setting's progress to attain Level 3 sustainability accreditation.

Pharmacy staff are educated on their role and involved in achieving their Trusts' green plans collectively.

Pharmacy staff should feedback to their health boards or ICS in England on how to integrate environmental sustainability into pharmacy specific values and practices. Hospital pharmacy staff can encourage their board of directors to declare a climate emergency and join Healthcare without Harm (HCWH) Europe’s Global Green and Healthy Hospitals network. See: West Yorkshire Health and Care Partnership Pharmacy and Medicines Optimisation Green Plan.

**Level 2:**

Environment sustainability is a standing agenda item for every pharmacy team meeting.

Pharmacy staff have joined or started a multidisciplinary sustainability task force in secondary care to take action towards sustainable healthcare.
Learn how a pharmacist in Wales who started [Green Health Wales](#) with two foundation doctors in north Wales grew green groups which are now present in every Welsh health board.

Pharmacy staff working towards net zero are allowed time off from clinical work to perform these activities.

E.g., complete toolkits, attend meetings or conduct audits.
Currently, there are very few funded roles within pharmacy sector to undertake activities that contribute to achieving NHS’s net zero ambitions.

**Level 3:**

**Develop a climate change mitigation and adaptation plan for pharmacy.**

Pharmacy has put in place adaptation action(s) to ensure their service and patients are protected and avoid unnecessary harm due to extreme weather conditions. E.g., Pharmacies located in flood risk zones should have adaptation plans for flooding and adequately insure the business against extreme weather events.

Pharmacy staff should be allowed regular breaks, flexible uniform policies and easy access to drinking water to stay well during heatwaves. Pharmacy settings should also have a process for managing medicines during heatwaves, see [managing temperature excursions](#) by SPS.

**Create green spaces in pharmacy settings.**

Creating green spaces in workplaces can benefit mental health and wellbeing for staff and patients. Green spaces can promote local biodiversity and provide natural shading or insulation for pharmacy settings. A green roof where plants grow can reduce the impact of urban heat islands, prevent flooding by reducing up to 50% of rainwater run-off and promote biodiversity.

See: [NHS Forest](#)

Where possible, utilise marketplaces and redistribution platforms for unused medicines close to their expiry date, which also provide better matching of supply and demand.
Appendix 1

Pharmacy travel audit

A. For pharmacy staff and patient travel audits

Pharmacy’s post code: [___]

1. From which post code did you travel to our pharmacy today? [___]
or How many miles in total did you travel to our pharmacy today? [___]

Staff working in multiple sites or irregular, hybrid working patterns:

1. On average, how many days per week do you travel to work? [___]
2. If you work on different sites regularly, please enter the post code of all the other sites, and how many days per week you travel to them:

2. What is the mode of transport you used to travel to our pharmacy today?

- [ ] Walking
- [ ] Cycling
- [ ] Motorbike
  - Size of motorbike: Small [ ] Medium [ ] Large [ ] Average [ ]
- [ ] Car
  - Size of car: Small [ ] Medium [ ] Large [ ] Average [ ]
  - Fuel: Diesel [ ] Petrol [ ] Hybrid [ ] Plug-in hybrid electric [ ] Battery electric [ ]
    Compressed natural gas (CNG) [ ] Liquefied petroleum gas (LPG) [ ]
  - Did you car-share with anyone? Yes [ ] (How many in a car? ___) No [ ]
- [ ] Train
- [ ] Bus

<table>
<thead>
<tr>
<th>Days</th>
<th>Total miles travelled (miles/km)</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
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<td>Saturday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>