



Medicine Waste in Care Homes: Reducing Social and Environmental Impact



Sustainability in
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Welcome to this Centre for Sustainable Healthcare (CSH) education screencast on medicines waste in the care home pathway. This video is for all staff in care homes, GP practices and community pharmacies who deal with prescriptions and medicines in the care home pathway. The content of this screencast has been developed from the Centre for Sustainable Healthcare Q-funded project on medicines waste in care homes¹. Scan the QR code at the bottom right hand corner of the screen for more details on the project.

Introduction

The provision of medicines to care homes is a complex process within the busy settings of care homes, general practice and community pharmacy. Every year, around £300 million worth of unused medicines are disposed of in England. Approximately £50 million worth of this waste comes from care homes^{2,3}. These figures were calculated in 2010, so the likelihood is that the current cost of medicines waste is actually much higher. Medicine waste is a long standing, systems wide problem, which has significant financial, environmental, and social impacts.

What is medicine waste?

So, what is medicine waste? Medicine waste is defined as:

Waste which contains or is contaminated with a medicine that contains a biologically active pharmaceutical agent⁴.

Any medicine which is no longer needed by the patient becomes waste. Medicines prescribed for one patient cannot be reused for another patient. Medicines which are past their expiry date also become waste. Some medicine waste is unavoidable. For example, when a patient dies, when a medicine is not tolerated, or when a medicine or dose is changed for clinical reasons. However, much

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medicine waste in the care home pathway *is* avoidable or, if not entirely avoidable, there is significant potential to reduce the volume of waste.

What factors contribute to medicines waste and wasteful activity?

Stock management in care homes is one of the key areas contributing to medicine waste. Over-ordering, poor stock management, unnecessarily returning medicines at the end of the monthly cycle and poor medicine cycle synchronisation drive avoidable medicine waste in the care home setting. For example, failure to align interim prescription requests with the monthly ordering cycle leads to an oversupply of medicines and a prescription which is out of sync with the monthly cycle. Well intentioned, but unnecessarily short expiry dates added to products such as creams and inhalers on opening can result in usable medicines being disposed of. Staff fear of carrying excess medication can lead to everything being disposed of at the end of each month. Use of individual dosage dispensing (such as robot dispensing into plastic pouches or use of monitored dosage systems) can result in unused medicine being discarded, even though it is still prescribed, in date and usable.

Complex processes - The care home medicines pathway is highly complex, time-consuming and high risk. Each of the three sites - care home, GP practice and community pharmacy - have their own complex processes and procedures relating to medicines. This applies to both regular monthly prescription requests and interim and urgent prescription requests. The processes at each of these three sites contribute to the overall medicine pathway process. However, staff in any one setting do not necessarily understand the processes at the other two sites, nor appreciate the impact of actions at their site on the wider process. For example, failure to order an urgent prescription within a pharmacy's daily delivery cutoff time might result in delay to a patient starting medicine and create extra work for staff in chasing up that prescription and perhaps re-ordering it from a different pharmacy.

Communication between sites is also challenging. Medicine provision to care homes is a complex process requiring regular communication across the interface between care homes, general practice, and community pharmacy. All the sites involved are patient-facing, busy healthcare sites with a high workload under constant pressure and patient demand. Sites are physically remote from each other, adding to communication challenges. A lack of a good, secure, reliable and direct communication method between care home, GP practice and community pharmacy contributes to delays to prescription, can result in duplicate prescription requests and subsequent queries and other wasteful activity.

We have found that the community pharmacy may be excluded from routine regular communication between the care home and GP practise, meaning that a significant amount of pharmacy staff time can be spent chasing prescriptions and following up queries relating to prescriptions. For example, a lack of good communication between the prescriber, the care home and the community pharmacy in relation to prescribing changes made at weekly ward rounds can result in wasted staff time querying changes to prescriptions and potential delays to prescriptions.

Medicines waste data - Regulatory requirements state that care homes must log all medicine waste, which provides a rich data set on the volume, content and variety of medicine waste in care homes.

This is data which is not readily available in other settings. However, we found that this data source was not routinely reviewed, monitored or communicated to prescribers.

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The problem of medicine waste is therefore largely invisible to prescribers and to those who allocate the prescribing budgets and the reasons for medicines waste in individual care homes remains largely unexplored.

The impacts of medicine waste.

Financial: We have already outlined the financial cost of medicines waste in the care home setting. £50 million every year is an unacceptable financial loss in the current environment of cost cutting. This £50 million relates only to the cost of the medicines. It does not include the cost of disposal of the medicines nor the cost of staff time at all sites taken up in ordering, prescribing issuing dispensing delivering and logging medicines which are then thrown in the bin.

But medicines waste does not just result in a financial cost, there is also an environmental and a social cost.

Environmental: Medicines represent around 20% of the NHS carbon footprint⁵. Globally, the manufacture, production and delivery of medicines in a complex supply chain represent significant environmental risks across the medicine life cycle, from the extraction of raw materials, the local impact of development and manufacture of pharmaceuticals and the transport of medicines across global supply chains.

Pollution from disposal of medicines packaging, which is often plastic and difficult to recycle, contributes to the growing global problem of plastic pollution.

Transport emissions related to delivery of medicines locally to care homes can be an unexpected carbon hotspot, particularly when long distances and frequent deliveries are involved. In our project, we found that the carbon footprint from transport emissions from daily medicine deliveries actually exceeded the carbon footprint of the medicine themselves at one site, due to long distance travelled between an online pharmacy and the care home and multiple daily deliveries which resulted from poor communication about the urgency of prescriptions.

Pharmaceutical pollution of waterways is a significant problem in the UK and globally, which impacts water quality and biodiversity⁶. Whilst the majority of human pharmaceutical pollution of waterways results from the excretion of active pharmaceutical compounds after medicines have been taken, the inappropriate disposal of medicines down sinks and toilets directly adds to this problem and, in the case of antimicrobials, adds to the issue of global antimicrobial resistance.

The appropriate disposal of medicines waste involves incineration. Avoidable medicine waste and disposing of outer packaging in medicines disposal bins adds to the volume of medicine waste which is incinerated. This unnecessarily increases the carbon footprint and air pollution which results from the incineration process.

Social: Medicines waste represents a waste of precious staff time which is a significant social impact at all of the sites involved in the care home medicine pathway. Every discarded item has already been ordered, issued, checked, dispensed, delivered and booked in. In a recent CSH project, we found that it took approximately 3 hours of care home staff time every week just to log and dispose of medicines waste. Reducing waste frees up time for resident care in the home and for staff in both the GP and pharmacy settings.

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Accountability and Visibility: In our project, we also found that medicines waste is largely invisible. Prescribers rarely see medicines waste. Routine reporting of the content or cost of medicines waste to prescribers does not occur. Although data is recorded, no one explores which medicines are most commonly wasted, which wasted medicines contribute to costs or why medicines have been returned. The cost of medicines waste disposal is not widely communicated. The lack of transparent data makes this a problem that is easier to ignore than to try and tackle, despite the obvious potential financial savings. It seems that medicine waste is everyone's problem but no-one's responsibility.

What can we do about medicine waste?

As in all cases of waste, the most impactful approach is to reduce the amount of waste created in the first place. All staff at every site can work towards this by avoiding overordering, checking for duplicate prescription orders and managing medicine stock levels. We can also reduce wasteful activities in the medicine pathway, reduce transport emissions for medicines delivery and streamline waste segregation to minimise waste going to incineration. To do this, it is essential that all staff have appropriate training on medicines waste, what it is and how to avoid it.

Care home actions

Medicine Policies and Processes

The amount of medicine wasted can be minimised by careful control of medicine stock, only ordering what is needed, avoiding overordering by aligning requests with the monthly medicines cycle, not disposing of all medicines at the end of each cycle and stock rotation to avoid in use medicines going out of date.

Other interventions to reduce medicine waste include:

- Use of existing policies such as bulk prescribing (for things like paracetamol suspension) and homely remedies where appropriate.
- Timely review of patients who are repeatedly refusing medicines.
- Deprescribing focused medication reviews at key transition points such as on admission to home, post discharge from a hospital stay, and when conditions deteriorate.

Medicine Waste Data

Comprehensive logging of medicines waste data is required in care homes. This data could be used as a starting point to measure, monitor and proactively manage medicines waste. If your log is electronic, get training on how best to use the capacity of the system to interrogate and analyse the data – aim to monitor the content and cost of medicine waste. If your medicine log is paper-based, review entries to spot themes. Use broad measurements, for example, number of entries, total amount of liquid discarded etc to identify problems which can then be addressed.

Care homes should ensure appropriate policies for disposal of medicines and prescribed non-medicine items. Seek advice from your medicines waste contractor (nursing homes) or community pharmacy (residential homes) as to what should and should not be included in the medicines waste bin. Note that not all prescribed items are medicines. For example, emollient creams containing no active pharmaceutical ingredients do not need to be put in the medicines waste. If you are unsure as to how to dispose of a particular non-medicinal product, seek guidance from that product's manufacturer.

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Appropriate Disposal of Medicines

Waste medicines should, as far as possible, be disposed of in their original packaging (such as the blister pack or bottle). This will help to minimise the risk of a dangerous reaction⁷. However, external packaging (typically cardboard or paper) must be removed and disposed of separately, and where possible, recycled. You must remember to remove any patient identifiable information, such as dispensing labels). Where facilities are available locally, other components may be removed for recycling, for example, empty medicines blister packs, insulin pen devices and metered-dose inhalers.

NEVER dispose of medicines down sinks or toilets as this adds to the problem of pharmaceutical pollution of waterways, and, in the case of antimicrobials, contributes to antimicrobial resistance.

Actions for all sites

Understand the whole pathway

It is essential that key members of the team at each site who are dealing with medicines understand how the process works across the other sites. A useful exercise is to process-map the medicine pathway end-to-end across all three sites. This should include routine monthly orders, interim and urgent requests. Ensure that all staff involved are aware of the overall medicine pathway processes across all three sites and how their actions might impact the process at other sites.

Map out timelines including monthly order cycle, daily cut off, time for orders and deliveries, and typical turnaround times for prescription requests and deliveries. Identify opportunities to optimise efficiency across the pathway.

You can find guidance on how to do this on the SusQI website. The step-by-step guide walks you through the process of embedding sustainability into any quality improvement project

Communication between Sites

Bring together one medicine champion from the care home, its linked GP practice and the dispensing pharmacy to lead on the medicine's pathway and ensure that communication between the three sites is optimised. Develop, maintain and pro-actively manage these relationships across pathways in the face of high workload and high staff turnover.

Enable secure direct, communication between sites which avoids the need for staff to use patient facing communication methods such as telephone lines. This might be as simple as the care home obtaining a generic nhs.net e-mail address so that a secure e-mail loop between the three sites can be set up.

Implement processes to ensure that local prescribers are aware of the issue of medicines waste. For example, take pictures of the monthly medicine waste (ensuring no patient identifiable information is visible) to illustrate to all staff at all sites the extent of medicine waste.

Work together to take collective action to minimise medicine waste, review processes regularly and celebrate and share success.

Conclusion and Signposting

Medicine waste is significant issue with financial environmental and social impacts.

It is everyone's responsibility.

We hope that this screencast has helped you to better understand the problem and how you might help to reduce the impact of medicine waste in your setting.

QR Codes for further information

Centre for Sustainable healthcare project page: Medicines waste in care homes – environmental and social impacts.

Summary, key findings and full report of the project funded by NHS England and the Health Foundation via the Q project initiative. Links to:

- Project report
- SusQI showcase presentation
- Case studies
- HSJ article
- Education screencast



SusQI website – step-by-step guide to embedding sustainability into quality improvement, including guidance on the process mapping step.



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5. NHS England. Five years of a greener NHS: progress and forward look. September 2025. Available at: <https://www.england.nhs.uk/publication/five-years-of-a-greener-nhs-progress-and-forward-look/> [accessed 16.10.25]
6. OECD (2019), Pharmaceutical Residues in Freshwater: Hazards and Policy Responses, OECD Studies on Water, OECD Publishing, Paris
7. Health Technical Memorandum 07-01: Safe and sustainable management of healthcare waste <https://www.england.nhs.uk/publication/management-and-disposal-of-healthcare-waste-hm-07-01/>

Resources

- Medicines waste in care homes – social and environmental impacts <https://sustainablehealthcare.org.uk/activity/medicine-waste-in-care-homes/>
- NICE SC1 Managing medicines in care homes 2014 <https://www.nice.org.uk/Guidance/SC1>
- CQC information for providers: Disposing of medicines <https://www.cqc.org.uk/guidance-providers/adult-social-care/disposing-medicines>
- PrescQIPP
 - Medicines adherence and waste: <https://www.prescqipp.info/our-resources/bulletins/bulletin-366-medicines-adherence-and-waste/>
 - Sustainability in medicines optimisation <https://www.prescqipp.info/media/xasnbw/340-sustainability-in-medicines-optimisation-2-0.pdf>
 - Care homes <https://www.prescqipp.info/our-resources/webkits/care-homes/>

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