

Medicines Optimisation – extracting the last vestiges of value from your medicines

Dr Liz Breen, Senior Lecturer in Operations Management, Bradford University
School of Management

Correspondence to: l.breen@bradford.ac.uk

Abstract

Title

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Author list

Breen L

Summary

The concept of waste and how it can be reduced, recycled, refurbished or reused in its current form has been widely discussed in industry. The importance of waste reduction from an environmental and economic perspective has also heightened in both industry and within the research arena. Thus said, stringent steps have been taken to facilitate the collection of waste medicines and capture their residual value. This article explores this premise in relation to medicines waste as part of the wider medicines optimisation agenda.

Keywords: returns, logistics, residual value, supply chain.

Medicines optimisation is about patients

We are all very aware of what medicines optimisation is and what it aims to achieve. Medicines optimisation is about ensuring that the right patients get the right choice of medicine at the right time. By focusing on patients and their experiences, the goal is to help patients to improve their outcomes, take their medicines correctly, avoid taking unnecessary medicines reduce wastage of medicines and improve medicines safety.¹

The amount of medicines in the supply chain is increasing

Medicines optimisation aims to get the most from medicines for both patients and the NHS. It is becoming increasingly important as more people are taking more medicines.² Evidence would suggest that we are living longer and living better. We thus need more medication to sustain this, which leads to an increase in polypharmacy. The output of this is an increase in the demand for pharmaceutical products, which in turn increases the quantity of medicines in circulation; on manufacturer sites, wholesalers, pharmacies and in patients' homes.

As stipulated by the Royal Pharmaceutical Society, medicines optimisation aims to deliver to the following core principles:

1) *aim to understand the patient's experience*

2) *evidence based choice of medicines*

3) *ensure medicines use is as safe as possible*

4) *make medicines optimisation part of routine practice.*

If the principles are adopted and measurement and monitoring takes place then there should be improved patient outcomes.³

This short perspective piece will reflect on and offer an alternative perspective on the third aim of this agenda i.e. focusing on medicines use safety.

Medicine optimisation needs to encompass waste in the supply chain

A basic business definition of 'optimisation' is '*Finding an alternative with the most cost effective or highest achievable performance under the given constraints, by maximizing desired factors and minimizing undesired ones.*'⁴ Medicines optimisation as currently practiced does not 'fit' with this definition. It does not seek to consider alternatives at the point of dispensing.

Pharmacists as experts in medicine, and in conjunction with learned professionals, seek to choose the right medicine for the right treatment to ensure efficacy, effectiveness and a positive clinical outcome and patient experience. To this end, the majority of activity and research in this area has considered the

optimisation of medicines for the patient and less of the total optimisation of the product itself. Yet there are recent studies focusing on medicines further downstream in the supply chain, e.g. waste management in pharmacies⁵ and care homes,^{6,7} which is warranted as there is evidence of the stockpiling of medicines. Greater vigilance should be paid to materials management/inventory control, the drivers of which are both cost reduction and risk removal/minimisation.

Medicines recovery – by hook or by crook, by truck or by foot?

When considering the current medicines optimisation focus and efforts the following questions can be posited:

- Where is the focus on the safety of the patient and risk to the patient once they have medication in their possession and do not use it?
- How actively does the NHS system facilitate the recovery of unused medications?

There is limited exploration of the recovery of unused and unwanted medications from patients, and even less into the mechanism by which they can be retrieved. Studies undertaken have examined why medicines recovery and analysis is undertaken in hospital pharmacies and have also highlighted deficiencies in the logistics infrastructure supporting medicines retrieval. For example, whilst there is a clear legal impetus for collecting batteries, the same driver does not exist for medicines.^{8,9}

The question must therefore be asked as to why we need to retrieve medicines in the first place. Surely, once they are in the hands of the patients then the patient will know how to take them and how to dispose of them if they are surplus to requirements or they need to stop them as a course of treatment (due to side effects, efficacy issues, etc)?

There are two key benefits to retrieving medicines from patients:

- Reduction of hazards within the domestic environment due to the stockpiling of medicines (these can be accessed and misused by children or the elderly leading to hospital admissions or worse).
- The information that can be gleaned from the medicines themselves (prescribing source, contents, quantity, patient information leaflet and outer packaging) and their use (from patient consultations during and post treatment) when returning medicines.

From a medicines optimisation perspective, much can be learned from and acted upon from returned products to improve patient care and the processing of medicines from GPs/doctors to pharmacy and on to patients.

What else can be done to improve recovery rates?

The current medicines recovery system only works effectively if patients return medicines to community pharmacies, so is innately flawed by design as some patients may never choose to do this.

As stated by the RPS, medicines optimisation can help encourage patients to take ownership of their treatment; but this doesn't automatically extend to ownership of, and responsibility for, product returns.

Medicines need to be removed from patients' homes and patients should have the option to: a) bring them back to a pharmacy or b) have them collected from their home/drop them at a collection point within their community. Both returns channels can be designed and executed to ensure that, optimally, medicines are returned to community pharmacies.

Option A: Patient education¹⁰

Medicines 'take back' schemes (e.g. disposal of unwanted medicinal products (DUMP)) and re-ordering schemes (e.g. Only Order What You Need,⁷) and pharmacist consultations can all play a strong role in developing 'green consciousness' to influence returns. The role of Community Pharmacy in facilitating this is tantamount to success and this is discussed in more detail below.

Option B: Collection

What can the NHS as a service do to improve recovery rates and move the emphasis from patient responsibility to system responsibility in recovering unwanted medications? Our American counterparts have, over the years, offered various solutions to increase the 'claw back' of unused medicines via street/domestic refuse collections and reduce the risk to animals and people who may access medications that have been put into domestic waste (advocating mixing of medicines with undesirable products such as strong coffee or cat litter). Is this practice something that could be adopted as an extension of medicines optimisation in the NHS (UK)? Having consulted with local recycling depots the answer, theoretically, is "Yes".

There is a well-established domestic refuse collection in place throughout the UK and strategically placed recycling centres so why can't these be utilised to accept medicines (if placed in appropriately secure containers) so they can be brought to recycling sites to be disposed of as per safety regulations or handed over to a 3rd party for incineration?

Collaborations of this ilk (NHS and local council waste management services) do exist but medicines are not included in this service.¹² There is, of course, a cost to this system but is the issue of medicines recovery and the risk to the patient of enough importance to warrant examining the feasibility of using such a system?

Medicines information – and no, not the dial up kind!

There is a wealth of data sources that can be accessed to support medicines optimisation from dashboards, to medication error reports, to thermometers through to data mining and BIG DATA analysis (which allows NHS professionals to analyse huge quantities of data, identify trends and patterns to support the case for change and development). However, important data is at our fingertips when medicines are returned but is barely ever accessed or used in an informed manner. Medications, once returned, are destroyed as per regulations. The assumption here is that, as an 'end of life' product, they have no further value to offer so incineration is the next step. This isn't so.

The data that can be retrieved from a product once returned can inform GPs, pharmacists, service improvement managers and commissioners, to name just a few parties, about the effective of prescribing. For example, how much has been prescribed but not used, to whom and when it was dispensed. This can offer excellent data for investigating medicines spend, medicines errors, counterfeit medications and system performance.

One has to ask, how often are audits undertaken on medicines returned to pharmacy so that this information can be used to inform improvement? Why do we not avail of this aspect of medicines optimisation? It is the final value-added contribution of any medicinal product - but it goes unnoticed. The information is out there but worthless if the medication is not recovered.

Community Pharmacy – can we do more?

Community Pharmacy has a pivotal role to play in supporting and delivering to the medicines optimisation agenda, due to their proximity to their patients. Their intervention can be twofold: medicines counselling and medicines auditing.

Medicines counselling

Community Pharmacists can work with patients or patient advocates and patient forums (e.g. GP surgery patient participation groups and Clinical Commissioning Group (CCG) health forum participants) to counsel and educate on medicines use and re-ordering but also to promote the retrieval of products. This practice can be supplemented by one-to-one discussions with patients to learn more about their experience with their medicines e.g. knowledge and comprehension of treatment, medicines compliance, storage, side effects, and disposal methods. This could be tied into Medicine Use Reviews (MURs) or be a separate consultation and could be especially beneficial to reduce unnecessary polypharmacy. The value of direct patient feedback can be extremely high if steps are taken to collate it in a manner which is user-friendly and accessible to the patient. Consultations in a community pharmacy setting would facilitate this.

Medicines auditing

Patients should also be encouraged by their pharmacist (hospital and community) to return any waste medicines (by displaying promotional information on televisions, computer screens, posters, leaflets, stamps/logos on paper bags or by 'word of mouth'). Once medicines are retrieved, pharmacy staff should take advantage of the residual information held by said

products and undertake regular audits or returned goods to feedback to local prescribing networks and other relevant parties.

The introduction of such auditing practice can act as an early warning system for issues associated with poor prescribing practice, errors or counterfeit medication; some of which may not be picked up by patients until a red flag is triggered or illness/death occurs. Such analysis can also provide information to bodies such as the Medicines & Healthcare products Regulatory Agency (MHRA), NHS England, Department of Health and manufacturers on compliance issues, escalating returns of a specific product or serious 'near miss' issues with medicinal products.

Auditing practice can be cumulative when enough stock has been returned to warrant it (e.g. the bin is full) or cyclical (the stock is emptied and evaluated every day, week, etc). Research in hospital pharmacies has shown that the practice of medicines audits and associated analysis can vary in relation to the practice and resources deployed to undertake this, from individual members of staff to dedicated teams.⁵ Community pharmacies should determine the most sustainable method of undertaking a regular auditing system and resource this accordingly.

Striding forward with purpose!

Medicines optimisation is optimisation to the end of life, not the end of use.

The focus currently seems to dwell on the optimal effectiveness of medicines dispensing and use but not on the whole life cycle of the product. Optimisation should consider the value of the pharmaceutical product once recovered from the patient and should encourage and facilitate this by enhanced retrieval systems.

Pharmacy within the NHS underpins the success of medicines optimisation and thus needs to be able to do this effectively. This will impact on system design, workload planning, skills development and operational strategy and ultimately influence the constitution of pharmacy contracts.

As asserted in the opening statement of this article, medicines optimisation is about ensuring that the right patients get the right choice of medicine, at the right time. Pharmacy has made great strides to make this happen but can also use the strength and expertise of its staff to perfect and consistently optimise the use of medicines, and waste medicines, within our healthcare system. This is an opportunity to do just this.

Medicines optimisation needs to extend to the end of the pharmaceutical supply chain i.e. the final recovery and safe disposal of the product.

'Out of sight and out of mind' cannot be how medicines are regarded in patients' homes. The safety of medicines use is key - but the safety of the patient in the presence of medication is king.

Declaration of interests

Dr Breen has nothing to disclose.

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