# Ensuring appropriate use of monitored dosage systems: reducing unnecessary pharmacy workload

**Provided by: Taunton & Somerset NHS Foundation Trust**

**Publication type: Proposed quality and productivity example**

## Sharing good practice: What are 'Proposed Quality and Productivity' case studies?

The NICE Quality and Productivity collection provides users with practical case studies that address the quality and productivity challenge in health and social care. All examples submitted are evaluated by NICE. This evaluation is based on the degree to which the initiative meets the criteria of savings, quality, evidence and implementability.

Proposed quality and productivity examples are predominantly local case studies that meet most of the criteria but are yet to be fully implemented. This may be because they are at an early stage of implementation and further evidence is forthcoming. These proposed examples may still be of interest. Additional information will be requested within a year from the date of publication. A summary of findings is provided below along with comments and recommendations about how this case study may be developed.

**Overview**

This initiative aims to reduce the inappropriate use of monitored dosage systems by ensuring they are only issued on a case-by-case basis to address specific practical problems of medicines adherence. The inappropriate use of monitored dosage systems can make patients and carers less familiar with their medicines. The preparation and checking of unnecessary monitored dosage systems creates a significant additional workload for hospital pharmacies, which can be reduced.

**NICE comment**

This initiative should improve hospital pharmacy productivity. It can take 20–30 minutes to prepare and check a single monitored dosage system, which causes problems at peak dispensing times. Predicted productivity savings are about £20,800 for a population of 340,000, equivalent to £6100 per 100,000 population. While the savings per unit population are low, the costs to implement are negligible and it can be implemented quickly. This initiative has only recently been implemented so the productivity savings and any safety issues have not yet been proven, but initial results demonstrate an 80% reduction in the number of monitored dosage systems issued. Future updates should confirm if this is sustainable and whether safety is improved.

## Details of initiative

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| **Purpose** | To remove non-value added and highly time-consuming work associated with producing monitored dosage systems (also known as compliance aids) in an acute hospital pharmacy. |
| **Description (including scope)** | Many patients are admitted to hospital with monitored dosage systems or are issued with them during their stay at the request of carers, where their use might not be appropriate. This results in unnecessary workload for acute hospital pharmacies as each one takes between 20 and 30 minutes to prepare and check. If a patient's medication is changed after a monitored dosage system has been prepared, another device must be prepared. This takes additional pharmacy time and can delay discharge.<br><br>It has been suggested that monitored dosage systems may make patients less knowledgeable about their medicines and how, when and why they should be taken (Royal Pharmaceutical Society 2013). This may in turn reduce patient autonomy and choice. There is also the risk of human error when preparing the devices, which could have serious consequences. There is little published evidence to support the benefits of such devices. NICE guidance (NICE 2014) states that care home staff should assume that a resident can take and look after their medicines themselves unless a risk assessment has indicated otherwise.<br><br>Patients who are admitted with monitored dosage systems, or a combination of monitored dosage systems and original packaging for different medicines, have frequent visits by a ward pharmacist. It is often found these patients are able to manage all their medicines from original packs.<br><br>Given these issues, the default approach should be to dispense medicines in their standard packaging, on the assumption that patients can manage their medicines unless indicated otherwise. This is in line with NICE guidance (NICE 2009) that states monitored dosage systems should be considered as an option to improve adherence on a case-by-case basis, and only if there is a specific need to overcome practical problems. This should follow a discussion with the patient to explore possible reasons for non-adherence and the options available to improve adherence, if that is their wish.<br><br>To achieve this aim, the pharmacy began a programme to ensure monitored dosage systems were only issued where patients were already using the devices before admission and were not found to be capable of managing medicines from original packaging, or a consultant had assessed them as requiring a device to address a specified problem with medicines adherence.<br><br>It was important to engage with the local clinical commissioning group before implementation, to agree the changes and ensure their support. |
| **Topic** | Medicines use and procurement. |

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| **Other information** | None provided. |

## Savings anticipated

**Amount of savings anticipated**

An annual productivity saving of approximately £20,800 per population of 340,000, equivalent to £6100 per 100,000 population.

The savings will be for hospital providers.

This saving was calculated based on a reduction of 32 monitored dosage systems a week. Each monitored dosage system takes an average of 25 minutes for a band 4, 5 or 6 pharmacy technician to prepare, with a check by a band 7 pharmacist.

| Details of savings | Saving |
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| 25 minutes per device, of a band 4, 5 or 6 not preparing the device (indicated saving is average across salary bands for this time) | £7.69 |
| 10 minutes per device, of a band 7 not having to check the device | £4.39 |
| Cost of each device | £0.45 |
| Total saving per device not issued per week | £12.52 |
| Reduction of 32 devices not issued per week | £400 |
| Annual saving | £20,800 |

There may be costs associated with the additional time taken to review patients and assess them against eligibility criteria for monitored dosage systems, but this has not been calculated.

There may be downstream savings for community pharmacies after discharge if they do not have to issue the devices, but this has not been quantified.

**Type of saving**

Efficiency savings because pharmacy staff time can be released and focused on other medicines-related activities.

Preparing monitored dosage systems represents a separate workload. Preparing a single device and checking it for accuracy can take 20 to 30 minutes of staff time. This is equivalent to dispensing between 40 and 60 single drug items at peak dispensing times.

There is also likely to be a reduction in delays to patient discharge, because regimens can be altered up until discharge without having to make up new monitored dosage systems, although this benefit has not been quantified.

**Any costs required to achieve the savings**

The only costs of implementing this change are the time required to gain agreement from senior management and ensure key stakeholders are aware of the policy. This time represents less than 6 months' savings.

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| **Programme budget** | No specific disease area or condition. |
| **Supporting evidence** | The number of monitored dosage systems prepared each month has fallen by 80% and this has been sustained for several months. |

## Quality outcomes anticipated

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| **Impact on quality of care or population health** | Not anticipated to have a significant effect on care quality. Reducing the inappropriate provision of monitored dosage systems may reduce problems associated with the devices, such as lower medicines awareness among patients and carers, but the effect on outcomes has not been established. |
| **Impact on patients, people who use services and/or population safety** | Safety may be improved to a slight extent. Transferring medicines to monitored dosage systems carries the risk of human error and the stability of medicines cannot be guaranteed outside their original packaging. The devices are not tamper-proof or child resistant, unlike some standard packing. The overall effect on safety has not been demonstrated. |
| **Impact on patients, people who use services, carers, public and/or population experience** | It is difficult to determine the overall effect on the patient and carer experience. There are likely to be benefits for patients and some carers who are happy to take more responsibility for medicines administration. Those dealing with multiple patients will need to become more knowledgeable about medicines administration. Some people may view this as becoming more highly skilled, while others may not view the extra workload and requirements as a positive change.<br><br>Only new patients to hospital are affected. Those people entering hospital with monitored dosage systems will not change to medicines in normal packaging unless they consent after a discussion of the options. Patients for whom the devices are likely to be beneficial, such as people with a visual impairment or difficulty reading, will still receive them. |
| **Supporting evidence** | No additional information provided. |

## Evidence of effectiveness

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| **Evidence base for case study** | Informed by a combination of local experience and opinion, and the documented findings of other organisations such as the Royal Pharmaceutical Society (2013). NICE guidance (NICE 2009) also states that monitored dosage systems should only be used to overcome specific practical problems on an individual basis. |
| **Evidence to date of deliverables from implementation** | This initiative has been implemented at Taunton & Somerset NHS Foundation Trust with data gathered on the number of monitored dosage systems issued. The number of monitored dosage |

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| | systems issued has fallen by 80% from 40 to 8 a week, but the sustainability of the scheme has not yet been proven. The savings are based on a 3-month pilot and may therefore be subject to seasonal variation. The benefits in terms of safety have not been confirmed. |
| **Supporting evidence** | No additional information provided. |

## Feasibility of implementation

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| **Implementation details** | The hospital pharmacy noted that about 16.5 hours a week were being spent preparing monitored dosage systems, but there is little evidence to support their use. It was recognised that the devices may provide benefits to a small group of patients, but they should not be the default option for patients.<br><br>The view that monitored dosage systems should only be issued on a case-by-case basis to address specific problems with medicines adherence is supported by guidance from the Royal Pharmaceutical Society (2013) and NICE (2009).<br><br>The hospital pharmacy therefore established criteria for issuing monitored dosage systems and gained agreement from commissioners to implement them. The criteria are that patients must already have been using a monitored dosage system before admission and are not capable of managing medicines from original packaging, or else have been assessed by a consultant as requiring a device to overcome a specified medicines adherence problem. The devices are not suitable for patients with poor dexterity or significant memory problems. The requester must also sign to confirm that they understand that repackaged medicines are unlicensed and accept the additional liability for the unknown effects on the pharmaceutical stability of the medicines.<br><br>A meeting was also held with the care of the elderly team to examine the evidence around monitored dosage systems and explain the reasons for implementing criteria for their use. Not all monitored dosage systems are issued to elderly people, but they make up a high proportion of recipients for whom the devices may not be appropriate.<br><br>The pharmacy now only issues monitored dosage systems to patients for whom a specific need has been identified. Those patients entering hospital with monitored dosage systems do not have them replaced by standard packaging unless they consent.<br><br>As a result of this initiative the issuing of monitored dosage systems has fallen by 80% and saved approximately 13 hours a week while ensuring patient care is not compromised. |
| **Time taken to implement** | This initiative can be implemented quickly (within 3 months). This includes the time required to discuss and agree the initiative with key stakeholders such as commissioners. |

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| **Ease of implementation** | The initiative is relatively easy to implement in terms of the action that needs to be taken, but it affects multiple organisations. These include NHS hospitals, pharmacies, GP practices and NHS care homes as well as care homes from other providers such as local authorities and private companies. Discussions across both primary and secondary care organisaitons would ease implementation in all sectors. |
| **Level of support and commitment** | The initiative is likely to achieve agreement from key stakeholders such as the local clinical commissioning group, who were fully supportive of the initiative. However, there may be resistance from care homes or carers because they may initially believe that monitored dosage systems are in the interests of a higher proportion of patients than is actually the case. In addition they may be required to take more responsibility for medicines administration. This resistance may be overcome by explaining the evidence around use of monitored dosage systems. It should also be noted that it is ultimately the pharmacist's decision whether a monitored dosage system should be issued. |
| **Barriers to implementation** | There may be some resistance from some stakeholders, as explained above. Some complaints were received by the hospital from nursing homes and carers because they wanted monitored dosage systems to continue to be issued more widely. The advice of the local clinical commissioning group was to forward the complaints to them so they could explain the policy and that they do not commission monitored dosage systems. |
| **Risks** | To mitigate the risk that monitored dosage systems could be denied to patients who would genuinely benefit from their use, criteria for provision should be clear, appropriate and transparent. Patients who may benefit from monitored dosage systems include patients who have less ability to read or understand the instructions on standard medicines packaging, but who have the dexterity to use the devices and who wish to adhere to the medicines regimen.<br><br>Monitored dosage systems will not improve adherence for patients who do not wish to take their medicines, lack the capacity to do so, or lack the dexterity to use the devices. |
| **Supporting evidence** | No additional information provided. |

## Further evidence

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| **Dependencies** | None identified. |

## Contacts and resources

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| **Contacts and** | If you require any further information please email: |

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| **resources** | qualityandproductivity@nice.org.uk and we will forward your enquiry and contact details to the provider of this case study. Please quote reference 14/0002 in your email.<br><br>National Institute for Health and Care Excellence (2014) Managing medicines in care homes. NICE guideline SC1.<br><br>National Institute for Health and Clinical Excellence (2009) Medicines adherence: involving patients in decisions about prescribed medicines and supporting adherence. NICE guideline CG76.<br><br>Royal Pharmaceutical Society (2013) Improving patient outcomes: the better use of multi-compartment compliance aids. |

ID: 14/0002
Published: January 2015
Last updated: January 2015