

Use of Lean methodology for the management of a total dressing scheme in primary care

KEY WORDS

- ▶ Lean
- ▶ Quality
- ▶ Rapid process improvement workshop
- ▶ Waste

The Primary Care Dressing Scheme (PCDS) was introduced to primary care in Northumberland in 2010 and was designed to deliver improvements to the quality of care provided to patients in a large rural trust. The scheme was developed by the tissue viability service in collaboration with the prescribing lead for the Trust commissioners. The initial aim of the PCDS was a reduction in the wastage of wound care products prescribed for patients and to provide instant access to appropriate products at point of contact with the patient. Lean methodology for the management of the wound care product stock held by the district nurses was introduced, ensuring delivery of the right treatment at the right time. In addition, the number of dressings dispensed could be managed to reduce both wastage and costs. The use of Lean methodology in managing the PCDS has reduced costs by £125 000. The use of Lean methodology in the management of the total dressing scheme has enabled the realisation of significant financial savings in treating wounds in the primary care setting.

Approximately 200 000 individuals in the UK have a chronic wound (Posnett and Franks, 2008). A wound survey undertaken in 2007 over a 1-week period in a UK Primary Care Trust identified that 68% of patients identified with a wound were treated in the community by district nurses (Vowden et al, 2009). It may come as little surprise, then, that the cost of treating patients with wounds in the UK has been estimated at between £2.3 billion and £3.1 billion per year in 2005 and 2006, representing around 3% of the total NHS budget (Posnett and Franks, 2008). Meanwhile, the cost to the NHS of dressings dispensed in primary care between October 2010 and September 2011 was £134 million (Posnett and Franks, 2008).

A total dressing scheme was introduced to primary care in Northumberland in 2010, the Primary Care Dressing Scheme (PCDS), which delivered improvements to the quality of care to patients in a large rural trust and the scheme was developed by the tissue viability service in collaboration with the prescribing lead.

Aside from reducing wastage in wound care products prescribed to patients and providing

instant access to appropriate products at point of contact, the PCDS aimed to provide savings to the prescribing budget and, although the PCDS broke even, there were no demonstrable savings.

In 2011, the North East Transformation System commissioned a consultant from the Virginia Mason Hospital, Seattle, to teach staff about the Virginia Mason Production System (VMPS). VMPS is a management method based on the Toyota Production System, known as Lean, and aims to:

- ▶ Improve quality and safety.
- ▶ Focus on what is important to patients with fewer mistakes, accidents, and errors.
- ▶ Reduce cost through elimination of waste.
- ▶ Improve service delivered by providing what is needed “just in time”.
- ▶ Engage with frontline staff.
- ▶ Build and embed a culture of continuous improvement.

Following training of all the clinicians involved in delivering the PCDS, savings were realised by the community nurse team in the pilot. This has been realised across a further 24 community nurse teams across the community business unit.

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METHOD

Total dressing schemes are in operation in several trusts in the UK in different formats. The aim of the initial pilot was to determine if the dressing scheme could improve patient care, as the district nurses regularly travelled 40 miles to assess a patient's wound, returned to raise a prescription for the appropriate product, then returned to the patient when the prescription had been dispensed to commence wound treatment.

The PCDS in Northumberland is funded from the prescribing budget and involves the district nurse completing an order form based on the wound formulary, which is authorised by the Tissue Viability Service and the order is then raised with, and delivered by, NHS supply chain direct to the district nurse base. The district nurse then stores a stock of wound care products in the base and in their car to enable the delivery of wound care at the patient's home on the first visit. Following wound assessment, a maximum of three dressing changes are left in the patient's home.

The pilot scheme was found to improve wound care and release clinical time by ensuring the patient received the right wound product at the right time. As the initial pilot had shown an improvement in the quality of care, the PCDS was rolled out to all 24 district nurse bases within the community trust in December 2010. However, it became clear after the first 6 months that financial savings had not been realised as predicted. There were improvements to the quality of care in wound care management, but financial costs remained unchanged.

In June 2011, the North East Transformation System commissioned the Virginia Mason Institute to assist trusts in the region to adopt Lean principles. Several senior managers and community matrons had undertaken this training and were required to demonstrate the effectiveness of Lean as a management system to meet the NHS Quality, Innovation, Productivity and Prevention agenda (Department of Health [DOH], 2010).

Using VMPS methodology, data were collected to understand the PCDS ordering and delivery process, from the supplier to the patient. This included interviewing all the professionals within the trust who are involved in the ordering, authorising, and delivery of the PCDS, as well as

ensuring the current process was understood so that a process map could be developed, including time taken to undertake tasks by each professional at each stage. All members of the team responsible for delivering the PCDS and senior managers were brought together to undertake a rapid process improvement workshop (RPIW).

An RPIW is a rigorous 5-day event that eliminates waste and improves practices through the redesign of ineffective processes. It was a process during which the district nurse team was empowered to make changes that are needed. Its success rests on the fact that it involves clinicians who know the process and builds local capability for problem solving and waste elimination. The approach makes change sustainable.

Following the RPIW, the team was able to identify areas of waste, not only of products, but also staff time in the ordering and delivery process. The RPIW team visited the district nurse base to understand any storage issues that may arise. A revised process was developed and actions put in place, which were supported by senior management.

Specific issues identified included the need to rearrange the items stored within the storage cupboard as it was used by a range of staff, including the cleaners. The cupboard was reorganised, and all equipment not used by the district nurses was removed, which realised extra storage space for wound care products.

The main change initiated was the development of a kanban system. Kanban, meaning "visible record" in Japanese, is a system of notification from one process to the other in a manufacturing system. Kanban cards, which may be multicoloured based on priority, are stored in a container that holds the item. They describe the product, supplier code, and quantity of that product. When the container is emptied, the kanban is used to order more. The kanban system allowed the rationalisation of the staff required to undertake the ordering of wound products for the store cupboard.

Initially, there had been a healthcare assistant and a qualified nurse responsible for ordering the products for the store cupboard. After the introduction of the kanban system, it only required the healthcare assistant to undertake the ordering process, which released the qualified nurse for more clinical care.

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Under the kanban system, the initial stock is agreed based on an audit of the previous 5 days’ usage of wound care products. The store cupboard was stocked with a 2-week supply of wound products. Each product is placed in a box for each week, and in the base of the box is a kanban card (Figure 1). When the last product is removed from the box, the card is placed in a central box and this is the stock to be reordered each week. The second week’s worth of stock is there just in case the product runs out before the next delivery. Stock is rotated to ensure there is no wastage of products in the store cupboard. This process also rationalised the stock held by each community nurse base.

The district nurses now have an individualised weekly stock level for their base and this has helped with the rationalisation of wound care products held. There are occasions when the stock level is increased due to UK national holidays. If their delivery day falls on a bank holiday, and they would normally have weekly deliveries, they are required to order 2 or even 3 weeks’ supply.

RESULTS

During the RPIW, the financial savings at the initial site were estimated as being around £800 per month, which was based on the previous average cost of £4037 per month and the actual cost of a month’s supply based on the audit, which was £3232. Following the adoption of the kanban system and the rationalisation of stock held in the pilot community nurse base, the actual savings over the first 4 months amounted to £4985.50.



Figure 1. Example of a kanban card.

The clinical time qualified nurses spend with patients has increased as the weekly ordering is undertaken by the healthcare assistant alone using the kanban cards.

DISCUSSION

The initial introduction of the PCDS was rolled out with the vision to improve the quality of patient care. Northumberland is a large geographical trust and, as such, community nurses can travel a distance of up to 40 miles for a home visit. Following assessment of the wound, the community nurse had to travel back to base to raise a prescription for the appropriate wound product and revisit the patient to initiate treatment. The PCDS has, without doubt, improved this situation and is beginning to display financial benefits also.

CONCLUSION

There are 24 community nurse bases in Northumberland and, to date, 20 have been through the process described in this article. The use of Lean methodology in managing the PCDS has reduced costs by £125 000 compared with the estimated cost if the scheme had it not been implemented. WUK

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