Impact of a wound management system on budget optimisation, formulary compliance and variations in care

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ABSTRACT

Optimising budgets in wound care is crucial if local health economy efficiencies are to be realised. How spending is managed and monitored can be difficult for community nursing services due to the variety of supply routes. Online wound management systems not on help tailor supply routes to reduce waste, thereby reducing cost, but also provide an audit platform for transparency across clinical practice. The non-prescription ordering system Formeo was implemented across City Health Care Partnership (CHCP), Hull, through a value-based industry collaboration. With its use, monthly spend on wound care reduced by approximately £5354 (11.9%), with a reduction in the total spend of £64 254. Further, Formeo enabled an audit of clinical practice to minimise products on the formulary. This provided CHCP, Hull, the opportunity to reduce variations in care, and therefore potentially improve clinical outcomes.

KEY WORDS

◆ Value-based collaboration ◆ Wound management system
◆ Formulary compliance ◆ Budget optimisation ◆ Care variance

Rigorous assurance, risk management and governance arrangements that provide the evidence to demonstrate the delivery of high-quality services is the focus for health establishments. For that assurance to be realised and to be of benefit, innovative technology and a method to measure its effectiveness must be adopted in order to transform services (Scobie and Castle-Clarke, 2019).

Auditing services are a vital component of this assurance, which clinicians need to embrace to ensure that services are fit for purpose. Audit results can be a catalyst for change, with the potential to optimise services in several key areas: budget optimisation, reducing variations in care and formulary compliance. City Health Care Partnership (CHCP), Hull, (CHCP, 2021) is a co-owned 'for better profit' organisation, investing profits into services, colleagues and the community. CHCP empowers its staff to make improvements in quality in their own clinical areas through the facilitation of best-in-class resources. Through its internal quality strategy, there is a focus on providing evidence to demonstrate the delivery of high-quality services. NHS England (2016) recommended that, by forming partnerships, healthcare organisations along with industry, could achieve the goals of better healthcare for everyone, better care for all patients and efficient use of NHS resources, as set out in the 'Triple Aim' (NHS England, 2014). CHCP recognised that, by embracing a digital wound management system, wound care costs could become sustainable while yielding better patient outcomes, improving patient experience and achieving better consistency in wound care practices, via the easier and more efficient procurement of wound care products. This would, in turn, lead to a better use of resources, which would support practitioners within the community setting to deliver the high quality of care that CHCP strives to achieve.

The Wound Compass programme provides greater visibility of wound care practice and streamlines processes to gain efficiencies. Using data and the latest technologies, the programme can help with reducing product and practice variation and providing measurable clinical outcomes. One of the key tools in this programme is Formeo, an online digital wound management system. Formeo allows healthcare establishments to fully control their wound care supply chain to help reduce costs, product waste and delays in treatment. In addition, Formeo is a comprehensive auditing tool, providing clinicians and managers alike an up-to-date picture of wound care in their locality. This allows clinicians to identify areas of best practice and focus on clinical practice where quality improvements can be made. Further, Formeo also offers an education platform that is bespoke and can include online modules, clinical practice pathways, clinical newsletters and other materials specific to the establishment.

The ability to control wound management products via an online system has the potential to impact clinical outcomes, as well as safeguarding formulary compliance.

Audit of formulary adherence helps to re-evaluate the decisions around advanced wound dressings/therapies and reinforces the rationale for using the items that are included. It helps to identify circumstances where variations in care can arise depending on the selection behaviour of clinical staff. Formeo gives the clinician and operation managers the ability to view ordering patterns, alerting them to such variations in care. This overview of wound care usage and spend is crucial in reducing variations and for facilitating budget optimisation.

This article examines how implementing the Formeo wound management system in CHCP in collaboration with an industry partner (Smith+Nephew) has the potential to benefit the local health economy, district nurse workload and patient experience.

Implementation of Formeo

Formeo was launched in CHCP in July 2019, with full implementation support from the Smith+Nephew regional team. A comprehensive training plan was rolled out across Hull and East Riding to ensure seamless integration in daily practice. A full stock-take on shelves was completed in July 2019, and support was provided via boot boxes in August 2019. A boot box is a stock of wound dressings that a community nurse carries with them to ensure the patient requiring treatment gets the right dressing at the right time.

The tissue viability nursing (TVN) team was able to facilitate formulary streamlining, with the aim of reducing waste and variations in patient care. Clinical and procurement managers were able to control spend through the ability to set budgets via Formeo for individual district nurse bases.

When asked about the support with setting up the system, a clinician commented:

> *'When Formeo was first introduced, the Smith+Nephew team were on hand in bases to support and guide staff; they worked closely with the community nursing teams and TVNs to ensure the transition was seamless, with no disruption to the service.'*

Another clinician commented on the difference that Formeo had made in terms of time and resource:

> *'Once up and running, the feedback from community nursing teams regarding Formeo has been very positive. Prior to Formeo being introduced, a considerable amount of time was allocated to nurses to order wound products, which meant that the wider team had to then pick up those nurse visits.'*

Method

Financial and nursing time calculations

Data were collected before (June 2018–May 2019) and after (June 2019–May 2020) implementation of the Formeo system in CHCP, using IQVIA data and the Formeo system data. IQVIA is a world leader in using data, technology, advanced analytics and expertise to help customers drive healthcare forward. As one element of a wider portfolio, it provides product usage data and analytics across the medical technology and pharmaceutical sectors.

Comparisons were made between the pre- and post-Formeo implementation phases. As the local providers' primary focus was on reducing the volume of and variance in foam dressings used, the analysis focused on foam dressing spend, which included volumes of dressings used and formulary variance.

Any observed reduction in dressings was modelled using simple estimates around the average number of wounds per patient (1.3) (Fife et al, 2012) and time per patient visit (31 minutes) (O'Keefe, 2006). The full-time equivalent (FTE) was calculated assuming 38 hours per working week and 52 weeks per year.

Supporting clinical survey

To support the analysis, 32 clinicians using the Formeo system were subjected to a separate survey around the impact of the system in September 2020. This survey evaluated the time taken to pursue prescriptions, time to receive dressings and the impact any delays in these had on patient safety. It also asked about the impact that Formeo had on reducing the time and frequency of nursing home visits to manage skin tears during the COVID-19 pandemic.

All data were analysed using Microsoft Excel. Statistical tests, where applicable, comprised t-tests, with results considered to be statistically significant at $p<0.05$.

Results

Financial and nursing time results

Analysis of IQVIA and Formeo data highlighted a significant reduction in the variance of dressings used before and after Formeo implementation, from 31 to 19 (*Table 1*).

Of note was a rationalisation of the foam dressings used, which contributed significantly to material budgets and which reduced from eight variants of dressings to five in the post-implementation phase.

The overall spend on foam dressings reduced from £541 453 to £477 199, and the average monthly spend reduced from £45 121 to £39 767, representing an 11.9% reduction ($p<0.01$).

Comparison of the volume of dressings used highlighted a similar trend, with the total of 210 071 units used pre-implementation reducing by 16.6% to 175 219 with the Formeo system. Further, the average monthly volumes reduced from 17 506 to 14 602 ($p<0.01$).

When applying simple estimates around the number of wounds per patient (1.3) and visit duration per patient (31 minutes), it was estimated that the efficiencies gained through Formeo released up to 27 000 patient visits, the equivalent of 7 FTE nursing heads (*Table 2*).

Formeo was set up to mirror the nursing formulary, making it easy and quick for the district nurses to use, because familiar products were on the system. Changes to a patient's wound management plan can be implemented almost immediately, as products arrive within an average timescale of 2.8 days, which is

Table 1. Number of variants of dressings before and after implementation of Formeo

Dressing type	2019	2020
Absorbent	5	4
Alginate/gelling fibre	3	1
Antimicrobial	8	5
Basic dressing	1	0
Film	1	1
Foam	8	5
Protease modulator	1	0
NPWT	1	1
WCL	3	2
Variants used	31	19

Note: NPWT=negative pressure wound therapy; WCL=wound contact layer

Table 2. Approximate number of nursing hours over 12-month period of Formeo implementation (assuming FTE as 52 weeks at 38 hours per week)

Foam dressings released	34 852
Estimated wounds per patient	1.3
Patient visits released	26 809
Minutes per patient visit	31
Nursing hours released	13 851
Full-time equivalent released	7.0

a 44% reduction from the previous route to supply. Ultimately, this means that clinical needs can be met with more efficiency, as stock is better managed.

Supporting clinical survey results

The reduction in spend, volume and variance was supported by the survey findings around the Formeo system. Hours per week spent processing dressing orders reduced by 27% ($p=0.08$), and, significantly, the time taken to receive dressings reduced from 5 days to 2.8 days with the Formeo system, representing a reduction of 44% ($p<0.01$; *Table 3*).

When asked about the impact of delays on patient safeguarding, 84% of respondents believed that slower access to the correct dressing presented a safeguarding issue; 93.5% of respondents agreed or strongly agreed that Formeo implementation would positively affect these outcomes.

Results across the small sample of respondents who were involved in the skin tear initiative showed that, before having access to the Formeo-led skin tear initiative, nursing home residents waited an average of 9.21 hours to have their skin tear dressed. Due to the initiative, this time reduced to just 24 minutes ($p=0.03$).

Discussion

Formulary compliance and reducing variations in care

Although the development of the national Commissioning for Quality and Innovation Indicator (CQUIN) and the wound assessment minimum dataset is undoubtedly going some way to achieving the remit of transformational change, challenges persist (Adderley et al, 2017). Clinician competence needs to be considered as a pre-factor for variations in care, but equally, NHS managers need to ensure that any clinical decisions made provide positive patient outcomes. Variations in care are likely the result of structure, processes and services that form the healthcare establishment (Harrison et al, 2019), with Gray et al (2018) proposing that smarter procurement systems within such establishments can help achieve improvements in the value of healthcare. Too many products on a formulary can cause confusion, while not enough can be restrictive when a clinician must choose the right product for the patient's wound. However, clinicians have reported that a restricted formulary can help rather than hinder, and that it can ultimately lead to better patient management (Gray et al, 2019). Further, the more variations there are in terms of product, the more problematic it becomes to measure the efficacy of the product and consistency across clinical practice (Kilborn and Hopkins, 2017).

In the absence of direct policy, systematic approaches to reducing variations in care remain an issue. The findings of the Carter report (2016) based in acute hospitals can easily be transferred to the community setting. The report highlighted the need for data analysis to support variations in practice. Prior to using Formeo, there was a clear variation in the products being used across all the community settings in CHCP. Having access to real-time data from Formeo provides invaluable insights into wound care practices and spending by location and highlights any need for training and development in specific areas. Using innovative solutions such as Formeo can go some way in managing this problem. Further to the authors' observations, by enabling streamlining of the formulary and a pre-set budget for each area, Formeo gave healthcare managers visibility of spend and clinical choice of dressing for the first time. Subsequently, the reported reduction in the number of variants of dressing used was 39%; 31 variants were used in 2019 versus 19 in 2020 (*Table 1*). Thus, the possibility of variations in care is reduced and the desired outcome of choosing the right dressing for the right wound at the right time becomes more attainable.

Budget optimisation

Healthcare services are faced with a dilemma: they must provide the very best patient care, while maintaining a focus on the best value for products and services. Healthcare professionals delivering these services have faced the challenge of more complex wounds leading to more complex treatment needs.

Community workload has increased over the decades, to such a point where one in four people over the age of 75 years will require a district nurse visit at home (Queen's Nursing Institute (QNI), 2021).

Additionally, wound care costs are escalating year on year; Guest et al (2017) estimated these to be growing at a rate of between 9% and 12% annually. The average clinical commissioning group manages an average of 23 200 wounds at any one time, so the potential cost for these wounds could stand at approximately £50 million (Guest et al, 2017).

In order to optimise budget through spend management and streamlining of the formulary, CHCP was able to make a positive impact on the local health economy. Through the reduction in the amount of foam dressings, costs were reduced, which meant that CHCP saw an instant improvement in value in its wound care service. In real terms, a reduction of £5354 in monthly spend was achieved. This reduction is further reflected in the reduced volume of dressings ordered, which could possibly help to reduce the waste that is often associated with ordering large volumes of wound care dressings.

Wound management programmes such as Wound Compass can help with budget optimisation, and, where efficiencies need to improved, every pound saved can be reinvested in new treatments and better care for patients (NHS England, 2014).

However, financial costs are not the only burden on the health economy. Nursing time takes up more of the burden of wound care rather than the actual dressings themselves. With numbers of district nurses decreasing by approximately 39% between 2002 and 2012 (Lindholme and Searle, 2016), innovative solutions that can reduce nursing workload must be explored. The Formeo system, due to its ease of use, reduced nursing workload across the data collection period by 27% for the single task of ordering products (*Table 3*). Given that multiple factors are considered to affect nursing workload (Myny et al, 2011), the ability to manage even the smallest parts of the daily workload has potential benefits for the clinician, the patient and, ultimately, the local health economy. The implementation of Formeo saw significantly reduced clinical workload, resulting in an approximate release of 13 851 nurse hours across the locality, which is the equivalent of 7 FTE nurses (*Table 2*). The more hours that can be saved on administrative tasks, the more time there is available to care for patients.

In the authors' experience, with the ongoing benefits of a robust online ordering system, changes to the way products are ordered and delivered can have a profound effect that might not have been originally anticipated. Some 84% of clinicians in the survey believed that slower access to products could result in safeguarding issues for patients. A large majority (93.5%) felt that the introduction of Formeo could affect clinical outcomes in a positive way, due to speedy ordering and delivery of dressings, which reduces the risk of interrupted care.

Impact during COVID-19

Implementing a change in practice is always a challenge regardless of the healthcare setting. The past year has brought new challenges, as community nursing teams have had to overcome the additional demands associated with COVID-19. Having a robust wound management system in place allowed the TVN team to work closely with industry partners to support procurement and easy access to products, which would normally be obtained through FP10 prescriptions. Patient-specific products could be ordered via Formeo and delivery was within 48 hours, meaning patients could still receive optimum treatment following assessment. As there were no gaps in patient care, the outcomes, patient experience and resource use all improved. Products to support shared and self-care were added to Formeo during COVID-19, reducing the foot fall of nurses, particularly through residential care homes and GP surgeries. This supported the nursing teams in undertaking essential visits, thereby reducing the potential risk of COVID-19 transmission within the community.

Further, in response to COVID-19, skin tear boxes were created with the objective of reducing the number of district nurse visits to nursing homes. Previously, nursing homes did not have access to skin tear dressings via the standard supply route, but, with the Formeo system, direct delivery of appropriate wound dressings was possible. On average, patients had to wait 9 hours for a health professional to apply a skin tear dressing from the point of referral (before introduction of the skin tear box). Since the introduction of the skin tear boxes and given the fact that nursing home staff can apply their own dressings, waiting times have fallen to an average of 24 minutes. On average, three fewer visits to the nursing homes per week were made by the district nursing team compared with the time before introduction of the box.

Formeo is structured in such a way that it is easy to use, meaning less nursing time is being spent ordering products. One clinician stated:

'Ordering used to take me 2 hours to complete; now it only takes a few minutes'.

Table 3. Time release survey questions (n=32)

	Average	% reduction
Before Formeo, on average, how many hours a week did you spend processing orders?	1	
After Formeo, on average, how many hours a week did you spend processing orders?	0.72	27%
Before Formeo, on average, how many days does it take to receive dressings?	5	
After Formeo, on average, how many days does it take to receive dressings?	2.8	44%
Before you had access to the skin tear box, on average, how long did you have to wait for a nurse to apply the first dressing for a skin tear? (in hours)	9.21	
Now you have access to a skin tear box, on average, how long does it take for a dressing to be applied? (in hours)	0.43	
Average visits reduced through skin tear box initiative	2.5	

KEY POINTS

- Online wound management systems can significantly affect budgets, nurse workload and patient experience
- Partnerships between the NHS and industry can offer long-term solutions in wound care
- Audits play a vital role in wound care management to make services more effective and efficient
- Online ordering systems can reduce disruption to patient care in times of increased workload, as seen during the COVID-19 pandemic.

CPD REFLECTIVE QUESTIONS

- What is the overall impact of Formeo on the district nursing workload?
- What are the problems associated with too many or too few products on a wound care formulary?
- What was the overall impact of Formeo implementation on budget optimisation?

The impact this has on nursing resources across the total wound population may be considerable, and it could ease pressure on clinicians, enabling them to see more patients, thereby potentially improving clinical outcomes.

Limitations

Analysis of Formeo data was carried out over a single community population of a typical NHS trust. The authors acknowledge that different results might be achieved due to differences in demographics, patient populations and local socioeconomic factors.

Conclusion

Collaboration between the NHS and industry, alongside the adoption of innovative wound management programs such as Wound Compass and digital solution systems such as Formeo, has the potential to benefit both the local health economy and, ultimately, the patient experience. Reducing variations in care and ensuring formulary compliance can contribute to enhancing the quality of service. Adopting innovative approaches to how wound care products are ordered, monitored and managed can help ensure that services are fit for purpose, which can transform services for the better, for today and for the future. **BJCN**

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