BMJ Open Quality Care homes education: what can we learn?

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ABSTRACT

Medical care received by care home residents can be variable. Initiatives, such as matron-led community teams, ensure a timely response to alerts about unwell residents. But early recognition of deterioration is vital in accessing this help. The aim of this project was to design and deliver an education programme for carers. It was hypothesised that the implementation of a teaching programme may result in improved medical care for residents. By understanding the enablers and barriers to implementing teaching, we hoped to identify the components of a successful teaching programme. Four care homes in Enfield received training on topics such as deterioration recognition over a 1-year period. The project was evaluated at 3, 6 and 9 months. Each evaluation comprised: pre-and-post-teaching questionnaires, focus groups, analysis of percentages of staff trained, review of overall and potentially avoidable, hospital admission rates. A Plan–Do–Study–Act cycle structure was used. The programme was well-received by carers, who gave examples of application of learning. Modules about conditions frequently resulting in hospital admission, or concerning real cases, demonstrated the best pre-and-post lesson change scores. However, the reach of the programme was low, with attendance rates between 5% and 28%. Overall, the percentage of staff trained in deterioration recognition ranged from 35% (care home one) to 12% (care home three). Hospital admissions reduced from 37 hospital admissions to 20 over the duration of the project. Potentially avoidable admissions reduced from 16 to 5. Proving causality to the intervention was difficult. Factors facilitating delivery of training included a flexible approach, an activity-based curriculum, alignment of topics with real cases and embedding key messages in every tutorial. Barriers included: time pressures, shift work, low attendance rates, inequitable perception of the value of teaching and IT issues. Care home factors impacting on delivery included: stability of management and internal communication systems. please ensure space here

PROBLEM

The Optimal study¹ reported that healthcare provision to care homes was ‘reactive and inequitable’. The Health Foundation Report² found that many emergency hospital admissions from care homes may have been avoidable.

Several initiatives have been developed to help improve medical care in care homes. These include outreach services such as

rapid response and care homes assessment teams (CHAT). However, these services only address part of the problem: ensuring a robust response once medical assistance is requested. Carer recognition of the early signs of deterioration, and an awareness of common medical problems, are vital in accessing holistic health needs assessments of decompensating frailty for residents.

There are 80 care homes in the borough of Enfield,³ one of the highest number in London. In 2018–2019, there were 63 hospital admissions across the 41 care homes affiliated to Medicus Health Partners. Common reasons for admission included general deterioration, pneumonia and sepsis.

It is paramount to ensure that all care home residents receive excellent care. This aligns with the core values of the NHS⁴ and falls within the remit of the enhanced health in care homes (EHCH) framework⁵; to provide care home residents with the same level of care as people living in their own homes.

Medicus Health Partners were awarded a contract to provide clinical care to 25 (later expanded to 41) care homes in Enfield in 2018. They recognised the requirement for a multidisciplinary approach to the provision of excellent medical care, and of the vital role of care staff in this. Thus, they collaborated with UCLPartners on this project.

The aim was to design and deliver an education programme in four care homes in Enfield in order to improve patient care over a 1-year period. The homes were a mix of residential and nursing, registered to Medicus Health Partners. They ranged from those with low hospital admission rates to those with a higher rate of secondary-care conveyance. Across the four care homes, there were a total of approximately 190 residents and 206 staff, although this fluctuated throughout the course of the project.

The intention was to explore the link between care home staff education and good medical care. It was hypothesised that the implementation of a teaching programme may result in better care. Reduction in

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potentially avoidable hospital admissions was used as a surrogate marker for improved care.

By understanding the enablers as well as the barriers to implementing regular teaching, we also hoped to identify the components of a successful teaching programme.

BACKGROUND

Several recent studies have alluded to the variable quality of medical care in care homes. The Optimal study¹ reported that healthcare provision to care homes was 'reactive and inequitable'. The Health Foundation Report² found that many emergency hospital admissions from care homes may have been avoidable. Happ *et al*⁶ evaluated advanced care plans (ACPs) and end-of-life (EOL) care in a care home, concluding that absent or inadequate ACPs were resulting in EOL patients being admitted to hospital. The Prosper study⁷ assessed whether the rate of urinary tract infections (UTIs), pressure sores and falls improved after safety tools were introduced into care homes. Both falls and pressure sore rates fell when safety processes were implemented. Gott *et al*⁸ looked at hospital admission in EOL patients, deducing that UTIs, confusion, reduced consciousness and stroke were common reasons for admission in EOL patients. Hence, the problem of variable or suboptimal care within care homes is well evidenced.

The link between improved medical care and investment in education is an exciting area of research. The EHCH⁵ framework identified seven core elements to the provision of high-quality care to care homes. One of these was workforce development. The common competencies⁹ stated that non-palliative care specialists working in social care often find themselves looking after people who are dying. Some trials looked specifically at the impact of implementing an education programme for carers in an attempt to improve early recognition of reversible causes of deterioration, thus improving quality of care. The PROSPER⁷ programme run by UCLPartners in 2016 evaluated whether quality improvement (QI) methods could be introduced in care homes to improve safety for vulnerable residents at risk of admission to hospital or significant deterioration. Results showed that two-thirds of participating care homes made changes to their working practices and changed the way they thought about safety. The 'What's best for Lily?' project,¹⁰ endorsed by UCLPartners, evaluated a 'train-the-trainer' approach to the delivery of EOL care education. This study concluded that EOL care training is required, and works well when implemented as an activity-based, discussion-orientated programme. However, the 'train-the-trainer' approach encountered challenges, for example, staff being inexperienced/underconfident in teaching, and a high staff turnover in the care sector resulting in loss of corporate knowledge.

The 'Skills for Health' Frailty Core Capabilities Framework¹¹ published in 2018 highlighted the importance of recognition of frailty as a long-term condition, and set

out the skills, knowledge and behaviours healthcare staff need when providing care for people living with frailty.

This literature review, thus, validated the hypothesis that education may lead to improved care, and helped form the basis for the content of teaching programme.

MEASUREMENT

The project was evaluated at the 3, 6 and 9 month points. It was initially planned to run for 1 year, but was redesigned at the 9-month point due to the coronavirus pandemic. Each evaluation was composed of four facets.

First, pre-and-post-teaching lesson questionnaires were used to assess carers' self-perception of their knowledge. This gathered useful information about the learners' reaction to the teaching, but had limited ability to assess impact of learning because the predictive validity of the questionnaires could not be assumed.

Second, focus groups with carers and managers were undertaken to identify examples of implementation of learning.

Third, an analysis of the number of staff trained was performed, to assess the reach of the programme. Overall percentages of staff trained in deterioration by the end of the project was also reviewed. This module was chosen as a marker because recognition of deterioration is a key topic, fundamental to providing good patient care.

Finally, hospital admission rates were analysed. These data were collected from EMIS primary care records, and cross-referenced with data provided by Enfield's CHAT. Each admission was reviewed by the author to decide whether it was potentially avoidable. Some admissions were also reviewed by the CHAT matron, and a consensus reached. 'Potentially avoidable' was defined as an admission that was either manageable utilising an alternative service or pathway, preventable in the first place, or in contravention to a pre-existing ACP. Primary care records and discharge summaries were accessed to assess the circumstances surrounding the deterioration, the staff involved in the escalation decision, the information acted on and the presence or absence of possible alternative pathways. It is acknowledged that such retrospective case analysis incorporates a degree of subjectivity. The rates of potentially avoidable admissions at the beginning and end of the teaching programme were compared for each care home. Proving causality between any intervention and hospital admission rates is difficult due to the presence of multiple confounding factors. Looking at potentially avoidable admissions helped minimise the variable of unequal sickness rates over time and between care homes, but the retrospective case analysis involved had the potential to introduce bias.

The project was a QI study across four care homes. The total population was approximately 190 residents and 206 staff. As such, this study was not designed to have the statistical power to prove effectiveness of intervention. Nor was it designed with control groups with which to

PDSA CYCLE 1 (0-3 months)

PDSA CYCLE 2 (4-6 months)

PDSA CYCLE 3 (7-9 months)

PDSA CYCLE 4 (10-12 months)

Timeline:

Figure 1 PDSA-cycle diagram and timeline. IT, information technology. PDSA, Plan-Do-Study-Act.

compare the study group, as matching for confounding factors would have been extremely challenging. The multimethod evaluation was used in order to provide the most practical, comprehensive evaluation within these limitations.

A Plan-Do-Study-Act (PDSA) analysis was conducted after each evaluation to identify change ideas for the next cycle (figure 1).

Prior to the programme commencing, research staff conducted baseline data gathering in the form of focus-groups with carers, managers and support staff, to establish baseline knowledge and attitudes of carers. They found that attitudes to providing EOL care in the care home were inconsistent. Some saw it as appropriate, but often, the staff felt that hospital was more appropriate for the very sick. Care homes that admitted to hospital less

frequently demonstrated a greater willingness to care for the very sick.

The staff scored highly when it came to listing symptoms of deterioration. Knowledge regarding what constitutes sudden or gradual deterioration was variable. Lower-admitting care homes were better at recognising the difference between the two.

Hospital admission data for Enfield was analysed at the start of the project to identify topics for inclusion. Interviews with managers were conducted to discuss delivery and content for inclusion.

DESIGN

The modules were written in advance, evidence-based and activity-focused. Topics included: deterioration recognition, care of the dying, falls, UTIs and strokes.

The programme delivery was adaptable and reactive: events occurring within the care home such as complex cases, deaths and inappropriate admissions influenced teaching content. The care homes were consulted about what they wanted, and how they wanted to receive it. Some opted for frequent, short sessions. Others requested periodic, all-day training. A single trainer delivered the sessions, drawing on the expertise of other healthcare professionals where appropriate. The research team, comprising UCLPartners staff and Medicus Health Partners clinicians, were involved throughout, assisting with data collection, analysis and generating change ideas.

Ensuring engagement was an anticipated challenge, as care home staff have multiple calls on their time. To help overcome this, teaching sessions were scheduled in advance, with reminder phone calls and emails sent. At the end of each session, further training was organised to maintain momentum of the project.

STRATEGY

After each evaluation at the 3, 6 and 9-month points, change ideas were generated for the next cycle (figure 1). These changes included amendments to both the content and to the delivery of the programme.

At the end of the 0–3 months period (PDSA cycle 1), it was concluded that the teaching was highly valued, as learners consistently rated their knowledge to be better after the session than before it (figure 2). Good anecdotal

Figure 2 Graph to show average pre-and-post-teaching session questionnaire scores per care home.

examples of change of practice were also provided. However, the teaching programme only reached 12%–28% of the carers in the care homes.

Change ideas concerning alterations to the delivery of the programme were generated in an attempt to address this. Interventions for PDSA cycle 2 included: nominating a training monitor to promote teaching and utilisation of evening teaching sessions. Ensuring that key topics were delivered at each teaching session was thought to represent a more realistic approach to addressing low attendance rates. Permission was granted to use 'Is my Resident Well- 10 everyday questions to ask'.¹² Modules were adapted to incorporate key information on deterioration, with references to this toolkit, and case studies to support its implementation.

At the end of the second PDSA cycle, the teaching sessions continued to demonstrate positive pre-and-post session change scores. However, the reach of the programme had not improved. Potentially avoidable hospital admissions reduced in three of the care homes and remained unchanged in one. Potentially avoidable admissions were reviewed by the author to identify causal factors and the circumstances surrounding the escalation decision. Factors involved were: staff calling the wrong service so receiving inappropriate advice, patients admitted to accident and emergency (A+E) when a rapid-access outpatient service may have been more appropriate and the admission of an EOL patient for care that could have been provided in the home.

Change ideas implemented for the next PDSA cycle (PDSA cycle 3) included the development of a new teaching session about escalation of patients to the correct service. Any medical condition frequently resulting in admission was included in the programme if not already present. Cards with contact details for community support services were distributed at teaching sessions.

The project was originally designed to run for 1 year. However, due to the coronavirus pandemic, the face-to-face teaching was terminated at 9 months, and the final evaluation conducted early. The focus then shifted towards exploring ways to ensure the sustainability of the programme, seek accreditation for the programme and to develop alternative teaching delivery methods as holding face-to-face sessions became more difficult (PDSA cycle 4). While this change was as a consequence of COVID-19, it was hoped that the development of novel teaching methods might help boost attendance rates. Thus, the change ideas were focused on delivery modification. Interactive videos were recorded and sent to the care homes, but the uptake was poor. The delivery of live webinars was hindered by lack of WIFI/technology.

RESULTS

The programme was highly rated by carers, with all care homes showing a positive change between average pre-and-post-lesson questionnaire scores (figure 2). Only 1 out of 44 teaching sessions demonstrated a negative

Figure 3 Graph to show change in percentage of hospital admissions deemed to be potentially avoidable across four care homes over time.

post-lesson change score. Modules about conditions frequently resulting in hospital admissions or relating to cases within the care home demonstrated the best post-lesson change scores. Good anecdotal evidence of improved care was gathered. Staff reported being more aware of the early signs of deterioration, of the importance of dehydration and nutrition, and of measures to reduce falls.

Hospital admissions reduced overall in all four care homes throughout the duration of the programme. There were 37 hospital admissions across the 4 care homes in the first 3-month period of the intervention (months 0–3), compared with 20 between months 7 and 9. This is a reduction of seventeen admissions. Hospital admission rates are affected by many variables, and proving causality with any intervention is challenging.

Measuring potentially avoidable admission rates removes fluctuating sickness levels as a variable, and helps avoid the potentially damaging intimation that all hospital admissions are ‘bad’. However, error may be introduced through retrospective case review.

The total number of potentially avoidable admissions reduced from 16 (0–3 months) to 5 (7–9 months) across all four care homes, comprising 43% of all admissions in the 0–3 months period and 25% of all admissions in the 7–9 months period (figure 3). Three of the care homes showed a reduction in potentially avoidable hospital admissions over the course of the teaching programme. Two of these three care homes (care homes one and four) engaged well with training, taking a degree of ownership of the programme. These homes achieved the highest number of staff trained in deterioration recognition by the end of the programme, at 35% and 28%, respectively. They also received the most teaching sessions throughout the programme (14 and 13 lessons, respectively). The care home that showed an increase in the percentage of admissions deemed to be potentially avoidable (care home two) initially showed good engagement with teaching, but this reduced over time. This home achieved the second-lowest number of staff trained in deterioration (26%) and received the second-lowest number of

teaching sessions overall (10). This care home showed persistently low attendance rates, with staff frequently being ‘rounded up’ on the day and certain groups (eg, night staff) not attending any sessions.

Care home three received the least the number of teaching sessions (9) and achieved 12% coverage of staff trained in deterioration recognition. This home faced other challenges throughout the course of the project, such as a change in management. This significantly affected engagement. However, the attending staff rated the sessions highly, and this home showed the best average pre-and-post session average change scores (figure 2). The number of potentially avoidable admissions in this home also decreased throughout the course of the project.

In all four care homes, poor attendance rates remained a challenge throughout (5%–28%), despite continued attempts to improve them. Overall, the percentage of staff trained in deterioration recognition ranged from 35% (care home one) to 12% (care home three).

Reasons suggested for low attendance rates are: shift work, staff required on duty, perceptions of value of teaching and time pressures. Attendance rates were better in homes with stable management, internal systems for organising training and in homes that placed a high value on teaching. Care homes with lower staff attendance rates were more likely to have unstable senior management, poor internal communication systems and place a lower value on teaching. The cessation of face-to-face teaching due to coronavirus at the 9-month point exacerbated this issue.

LESSONS AND LIMITATIONS

The teaching programme was interactive—quizzes, games and brainstorming were all ‘low-tech’ ways to engage learners. Case studies encouraged application of knowledge and demonstrated relevance. Tools such as ‘Is my resident well- 10 questions to ask’ and ‘Significant care’¹³ boosted learning, but required assistance with implementation. Analysing admissions to hospital, especially those deemed potentially avoidable allowed tailoring of the programme to the home’s individual needs and ensured relevance.

To address low attendance rates, key concepts, for example, deterioration recognition were embedded within each teaching session, ensuring that these messages were disseminated at every lesson. The deterioration recognition module was run more than once in each home, due to its importance to resident care. Each module was ‘stand-alone’, as regular attendance could not be assumed. Nominating a teaching monitor and developing ‘individualised learning plans’ encouraged the care homes to take ownership of their learning. Evening sessions were a good way to offer flexible delivery, but were limited by availability of professionals time.

Reminder phone-calls and emails prior to the teaching helped keep the teaching in the fore. However, despite

these measures, maintaining attendance at teaching was an enduring challenge. In addition, high staff turnover within the social care sector posed further challenges in ensuring that all staff were trained.

Using webinars and podcasts presents an opportunity to provide training flexibly. However, methods to maintain momentum for teaching must be explored further if a self-directed learning model is to be implemented: with so many competing time-pressures, there is a risk that training could be side-lined. An investment in information technology (IT) is also required if remote learning is to be delivered at scale. Inadequate IT facilities is currently a barrier to successful utilisation of virtual meeting platforms.

Factors within the care home such as stability of management and communication systems impacted on delivery of the programme. Due to the public-private sector interface between health and social care, addressing these elements will require a multiagency approach.

Evaluation of the project was challenging. The multi-method evaluation provided the most practical evaluation solution, helping address the limitations of each single element. Admissions' data provided robust quantitative data, but its use was constrained by challenges in proving causality to the intervention. The project was not designed to have the statistical power to prove effectiveness of intervention. Nor was it designed with control groups with which to compare the study group, as matching for confounding factors was too difficult.

Analysing potentially avoidable admissions allowed staff knowledge and decision making to be better evaluated. However, retrospective case analysis potentially introduced research bias. This was compounded by the variability in availability of hospital discharge summaries. Using reduction in potentially avoidable hospital admissions as a surrogate marker for improved care may be unreliable as it does not encapsulate all aspects of improved care. In particular, it may not reflect qualitative end-points such as better communication with residents, improved pain management and enhanced holistic care. 'Improved medical care' is a difficult entity to measure. In future, other quantitative end-points could also be assessed, such as UTIs, falls and pressure sore rates within the care home.

Good examples of changes to practice were collected, including some that resulted in admission avoidance. Review of individual cases of change to practice, and the resultant improved care, allowed the 'human' impact of the programme to be captured.

CONCLUSION

The project demonstrated, within the limitations of the evaluation approach, a link between education of staff and reduced potentially avoidable admissions. The two care homes (one and four) that received the most sessions, and achieved the highest overall rates of staff trained in deterioration recognition, showed a reduction

in potentially avoidable admissions. The care home (two) that showed an increase in potentially avoidable admissions demonstrated suboptimal engagement. The final care home (three) rated the sessions highly, but received the fewest sessions. This home encountered difficulties with engagement due to a change in management midway through the project.

The project explored factors, both intrinsic to the programme and inherent to the care home that augmented successful delivery of training. These included a flexible delivery approach, an activity-based curriculum, alignment of topics with admission data and embedding key messages in each tutorial. The project also examined barriers to implementation, such as competing priorities on time, shift work, low attendance rate, inequitable perception of the value of teaching, internal communication systems within the care home and availability of IT support.

The project was funded for 1 year. However, it is sustainable as an on-going intervention. Educational material, in the form of a 13-module work book (online supplemental file 1), has already been compiled. A general practitioner or allied healthcare professional would be required to lead on the programme in the future, to update modules, to plan and orchestrate teaching sessions and maintain momentum for training. In light of COVID-19, the programme may evolve to incorporate new teaching methods, resulting in a higher dependence on technology. This may help improve the reach of the programme, as this remained an enduring challenge.

The financial cost of the programme was limited to the cost of the lead professional's and carer's time. One A+E attendance costs approximately £160.¹⁴ A non-elective hospital stay is on average £1600, although there is a wide deviation around this average. Hence, if fifty admissions per year are saved, this programme is financially justified. The knowledge and skills gained by carers (and thus the cost saving from reduced admissions) may continue beyond the duration of the programme.

The human impact of earlier medical care, better EOL care and prevention of serious medical problems cannot be calculated. Nor can improved motivation and morale of care staff, and the postulated secondary effects of this such as increased staff retention, recruitment and reduced staff sickness rates.

This is an exciting area for future development. Opportunities for the future include: ensuring that teaching reaches all staff, maintaining momentum for teaching during the coronavirus pandemic, embedding clinical training into compulsory training packages, validating training modules so learners receive an accredited qualification and implementing at scale. The recent drive for improved provision for care homes lends credence to the need for further research. Discovering flexible and innovative ways to deliver teaching, assisting care homes with technology, and ensuring engagement with remote training would be useful themes for future QI projects.

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Contributors Conception or design of the project: Mike Roberts, AS, SJ, TG, AG, SFA, JJN, MS and KB. Acquisition, analysis or interpretation of data for the work: SFA. Drafting the work or revising it critically for important intellectual content: SFA, TG, AG, AS and SJ. Final approval of the version to be published- SFA, TG, AG, AS and SJ. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: SFA.

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