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Improving the care of patients feeding at risk using a novel care bundle

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ABSTRACT

Feeding with acknowledged risk is appropriate for patients unsuitable for tube feeding who have an unsafe swallow that is unlikely to improve. However, without excellent multidisciplinary decision making and communication, patients may spend unnecessarily long 'nil by mouth' (NBM) and advance feeding/care plans may not be made or communicated. The FORWARD bundle (Feeding via the Oral Route With Acknowledged Risk of Deterioration) was sequentially co-designed and embedded across different services using 'plan-do-study-act' methodology to systematise best practice. Care before and after FORWARD was evaluated using a time-series analysis of 80 patients who had been risk-fed. Time NBM without tube feeding improved from 2 to 0 days (p=0.02) with significantly better documentation of capacity assessments and discussions with next of kin. There were sustained trends to improved rates of best interest discussions and communication of feeding plans to downstream care providers. The significance and applicability of these findings is discussed.

KEYWORDS: Dysphagia, patient-centred care, quality improvement, shared decision making, teamwork

Introduction

Dysphagia (swallowing difficulties) is a common problem affecting 12–13% of hospital inpatients with significantly increased prevalence in selected patient populations, such as those over the age of 60 years and those who have suffered a stroke.[1–4] A proportion of dysphagic patients have an unsafe swallow that is unlikely to improve; reasons include neurological disease (such as Parkinson's disease, cerebrovascular disease and dementia), anatomical abnormalities of the mouth, pharynx or oesophagus, and oropharyngeal weakness in the terminal stages of an illness. Often modifications can be made to patients' diets and fluids to facilitate safe swallowing despite these impairments but in a proportion of patients there will be no safe method of oral feeding or these modifications will be declined by the patient. If fed orally, these patients risk aspiration of food or fluid and consequent pneumonia. Nasogastric and/or gastrostomy tube feeding is a solution to this problem but in a significant proportion of cases, tube feeding is either declined by the patient, not tolerated, or considered by the multidisciplinary team (MDT) not to be in the patient's best interests. Indeed, tube feeding is not recommended for patients with advanced dementia[5–7] or those receiving end of life care.[8] 'Feeding at risk of aspiration' or 'risk-feeding' is often seen as a strategy that affords comfort, dignity and autonomy for such patients.[7,9]

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Assessment of problems

The decision making and management of dysphagia is complex, with patient prognosis and capacity to consent to safest feeding recommendations both requiring assessment.[7,10] This usually relies on both speech and language therapy (SLT) and medical input. Close communication and coordination with patients, carers and MDTs is mandatory and, if this is lacking, clinical indecision may lead to patients being kept nil by mouth (NBM) inappropriately long and to the detriment of their comfort and quality of life.

Individualised risk-feeding plans may be put in place for patients whose dysphagia is unlikely to improve. These plans need to be communicated effectively to onward care providers to avoid patients being NBM after showing signs of aspiration in the community or on re-admission to hospital, causing considerable distress to both patients and their families. In a group of patients who may deteriorate with aspiration pneumonia, it is also of the utmost importance that clear 'escalation plans' are put in place so that the appropriateness of interventions, such as antibiotic treatment, chest physiotherapy, transfer to critical care units or cardiopulmonary resuscitation, are considered, particularly if healthcare professionals unfamiliar with the patient may be involved with their care.

In St Thomas' Hospital, we observed five cases of patients fed at risk where care process issues were noted; three patients were kept NBM without alternative enteral nutrition for a number of days before a risk-feeding decision was undertaken and two patients were fed with acknowledged risk but then transferred to critical care units following aspiration without discussions or decisions having been taken regarding the desirability of

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such an escalation of care. Reasons for these issues included a failure of healthcare professionals meeting to discuss patients' best interests and delayed or incomplete assessment of patients' views and capacity. Consequent distress and discomfort of the patients and families in question was noted. These cases served as an impetus to design, develop, implement and evaluate a tool designed to support patients in the challenging area of feeding at risk. Our hypothesis was that such a tool would reduce the time that patients spend NBM around a risk-feeding decision and would also prove helpful in improving rates of capacity assessment and best interest discussions, and communication of feeding plans to onward care providers.

Strategies for quality improvement

A multiprofessional project team incorporating geriatricians, SLTs and a dietitian was convened and, after discussion with wider interdisciplinary groups involved in risk-feeding (including stroke and palliative care clinicians), established optimal risk-feeding management strategies to involve case selection, capacity assessment, decision making, creating and communicating oral feeding plans and advanced care planning. Because such a process involved a number of different important tasks for clinicians to perform quickly and comprehensively, it was felt appropriate to encapsulate them in a care bundle as a set of interventions that when applied together can lead to improved clinical outcomes.[11,12] It was felt important that such a bundle should fit in with existing ward practices and a guiding development principle was simplicity and clarity for users to maximise understanding, minimise extra effort and lead to a positive experience that would be repeatable or relatable.

Using a concept originally piloted at the Queen Elizabeth Hospital, Woolwich,[13] a new care bundle called FORWARD (Feeding via the Oral Route With Acknowledged Risk of Deterioration) was devised to take care providers through the aforementioned stages of optimal risk-feeding management. Use of a memorable name with a positive association (FORWARD) was felt to be important so that it could be used in clinical communication and could benefit from publicity via word of mouth. A flow chart was chosen as the best way to capture the sequential and algorithmic nature of the necessary management steps. The FORWARD bundle was then developed over 12 months in accordance with a plan-do-study-act (PDSA) mode of quality improvement that has been shown to be an effective and appropriate model for healthcare systems improvement.[14,15] The model depends on making incremental improvements by cycling through the four phases inherent its description. In this case, that meant 'planning' in meetings with relevant stakeholders (patient groups, carers, healthcare professionals involved in risk-feeding), 'doing' by sequentially 'rolling out' use of the FORWARD bundle for inpatients at St Thomas' Hospital, 'studying' by data collection and face-to-face feedback from stakeholders and 'acting' by making changes to the bundle according to what had been found. The FORWARD bundle underwent 18 iterations to reach the final pathway in the form of a simple flow chart for the MDT to complete (Supplementary file S1). Alongside the flow chart, information leaflets on risk-feeding were created for staff and for patients or their carers (Supplementary file S2). Furthermore, in response to staff (mainly SLT and nursing) feedback and as part of the PDSA approach, a FORWARD-branded swallow advice poster for display above patients' beds was created (Supplementary file S3).

Evaluation

The project team met formally on a monthly basis to incorporate continuous evaluation and iterative development of FORWARD. By incorporating best practice into a care bundle that mandated logical, consistent, interdisciplinary working, it was hypothesised that necessary interventions in risk-feeding would occur more quickly and more reliably. In order to test this, a quasi-experimental time-series design was adopted. Examination of data on the number of patient days NBM and care provider compliance with capacity assessment, discussions with patients or relatives about risk-feeding and clear documentation of feeding care plans in electronic patient discharge letters was undertaken for risk-fed patients at St Thomas' Hospital. These variables were recorded for inpatients in the 6-month period prior to the initiation of the FORWARD care bundle and for inpatients subsequently supported by FORWARD in the first, second and third 6-month blocks after its launch. This facilitated before and after comparisons to be made as well as helped us to evaluate performance over time. The primary outcome measure was that FORWARD would reduce the time that patients spend NBM around a risk-feeding decision. Secondary outcomes included the effect of FORWARD on the rates of documented capacity assessments and best interest discussions with patients and/or their next of kin, and communication of feeding plans to onward care providers. Quantitative data were tested for normality using the Kolmogorov-Smirnov test. Continuous non-parametric data were compared using Mann-Whitney and Kruskal-Wallis tests and categorical data were compared using Chi-squared tests.

Results

A total of 19 patients were risk-fed in the 6 months prior to FORWARD being initiated and 61 patients were subsequently risk-fed using the FORWARD bundle in the ensuing 18 months. Median (interquartile range, IQR) time NBM for patients fed at risk decreased from 2 (1–4) days in the 6 months before FORWARD was initiated to 0 (0–2) days in the first 6 months after FORWARD was initiated. This improvement was sustained in the following two 6-month time periods after FORWARD was initiated with the median time NBM remaining at 0 days but IQR decreasing in magnitude from 2 to 0 days (Table 1, Fig 1). Implementation of FORWARD led to sustained and significant increases in documentation of capacity assessments and discussions with next of kin and a sustained trend to improved rates of best interest discussions and communication of feeding plans to downstream care providers. There were no significant differences in outcome measures between the three post-FORWARD groups, indicating sustained performance (Table 1, Fig 2 and 3).

Discussion

Feeding at risk helps support comfort, dignity and autonomy in patients with permanent dysphagia but is associated with specific management challenges. The FORWARD care bundle

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Table 1. Comparison of patient risk-feeding management before and after implementation of the FORWARD care bundle

	6 months before FORWARD was initiated (Group 1) n=19	First 6 months after FORWARD was initiated (Group 2) n=17	Second 6 months after FORWARD was initiated (Group 3) n=20	Third 6 months after FORWARD was initiated (Group 4) n=24	Comparison between Groups 1 and 2	Comparison between Groups 2,3 and 4
Median (IQR) patient age	80 (25)	85(8)	83(16)	81(14)	p=0.10	p=0.31
Median (IQR) number of days patient NBM	2 (4)	0 (2)	0 (0)	0 (0)	**p=0.02**	p=0.29
Rate of documentation of capacity assessment	42%	94%	90%	100%	**p<0.01**	p=0.30
Rate of documentation of best interests discussion	90%	100%	95%	100%	p=0.18	p=0.35
Rate of documentation of discussion with patient's next of kin	47%	100%	95%	100%	**p<0.01**	p=0.35
Rate of documentation of feeding plan in electronic discharge letter	67%	91%	92%	100%	p=0.08	p=0.75

FORWARD = Feeding via the Oral Route With Acknowledged Risk of Deterioration; IQR = interquartile range; NBM = nil by mouth

addressed these issues by providing clinicians with a tool to ensure consistent and good-quality care for such patients, emphasising timely decision making, a multidisciplinary approach and advance planning. Significant improvements were made in the first few months of its use that were sustained and improved further with its implementation in a PDSA fashion. The sustained improvements were seen in 'process' metrics (eg documentation of capacity assessment) and also in our main 'outcome' metric – the time NBM. It is therefore likely that FORWARD contributed to the comfort and dignity of the patients who were supported by it.

The FORWARD care bundle achieved a significant reduction in the time that patients being risk-fed were NBM. Clear signposting and an algorithmic approach afforded by a flow chart may have orientated clinicians to the completion of necessary 'next steps'. It is also possible that a care bundle under a single banner was simpler and, therefore, more readily and quickly applied than disparate interventions from different professionals at different times. However, it could be that the improvements observed following the introduction of FORWARD were not due to the bundle *per se* but instead resulted from a raised profile of risk-feeding attributable to the project team's promotional efforts. Weighing against this latter explanation is the fact that improved performance in measured

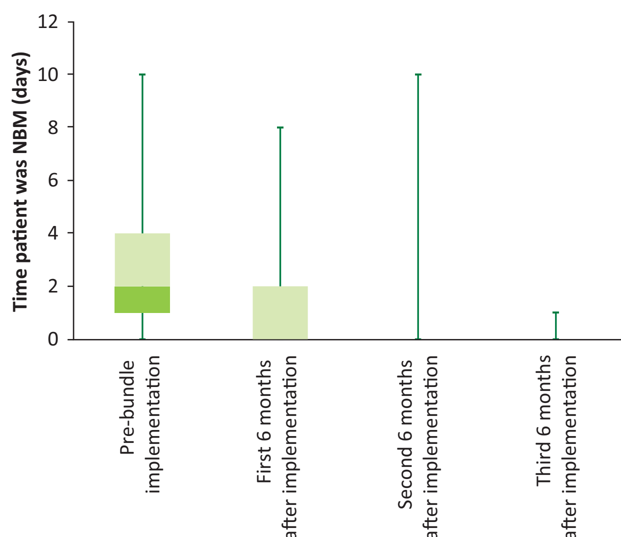

Fig 1. Time patients were NBM before and after implementation of the FORWARD care bundle. Whiskers show complete data range and shaded boxes represent second and third quartiles. FORWARD = Feeding via the Oral Route With Acknowledged Risk of Deterioration; NBM = nil by mouth

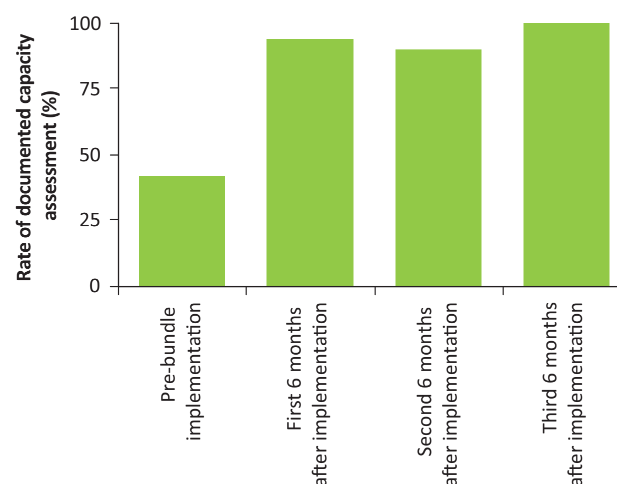

Fig 2. Rates of documentation of patients' capacity to consent to feeding recommendations before and after implementation of the FORWARD (Feeding via the Oral Route With Acknowledged Risk of Deterioration) bundle.

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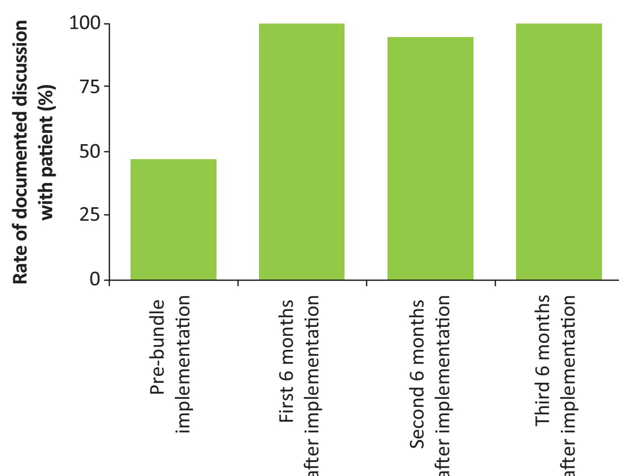

Fig 3. Rates of documentation of discussions with patient/next of kin regarding risk feeding before after implementation of the FORWARD (Feeding via the Oral Route With Acknowledged Risk of Deterioration) bundle.

domains remained even up to 18 months post-'launch'. The positive change observed may simply represent regression to the mean in that there may have been an unusually inferior period of risk-feeding care that was going to improve anyway. However, if that were true, given the amplitude of the changes immediately observed after FORWARD was launched one might then expect a greater degree of subsequent fluctuation than the relatively consistent performance that actually transpired.

One of the project's strengths was its apparent sustainability. Not only did numbers of patients supported by FORWARD increase over time (Table 1), but clinical impact remained high. While introduction of new processes of care is challenging, sustaining those processes and healthcare professionals' interest in them is often more difficult.[16] The use of a PDSA approach is tailored to achieving this by making alterations to processes of care in direct response to stakeholder feedback while maintaining a structured experimental approach.[17] The upward trend in patient numbers supported by FORWARD over time may also have been, in part, a result of the fact that a significant proportion of patients who might be eligible for risk-feeding are attended to by a relatively small group of healthcare professionals, usually incorporating SLTs and dietitians, who would have been cognizant of FORWARD, helping to promote its use, overcoming natural cultural resistance.

Use of a care bundle in this setting enshrined the principles of good quality and consistent management in risk-feeding, where interdisciplinary communication and a logical process are of key importance. Bundles have been shown to provide reliability, consistency and measurability to processes of clinical care and support good teamworking by producing a shared plan in which different members of staff can have different roles.[14,15] The involvement of multiple healthcare professionals, particularly SLTs, in the design and application of FORWARD was also central to its success by helping to ensure that patients risk-fed using FORWARD had input from a variety of interested and expert healthcare professionals.

It would be rash to conclude that an intervention like FORWARD alone can improve the care of risk-fed patients in any care setting and a significant future challenge is to 'roll out' FORWARD into care environments where risk-feeding is less common and staff may be very inexperienced. Indeed, the generalisability of the results needs to be tempered with the small numbers of patients studied and the fact that Guy's and St Thomas' NHS Foundation Trust benefits from a culture already supportive of innovative care bundles.[18,19]

Conclusions

In this pilot study, the FORWARD bundle has been shown to be a useful tool for delivering high-quality care to inpatients with an unsafe swallow unlikely to improve. This was borne out by patients appropriate for risk-feeding who were supported by FORWARD spending a significantly shorter time NBM and having significantly improved documentation of capacity assessment, discussions with next of kin and communication with onward care providers. These findings provide support for a more conscious, systematic, timely and patient-centred approach to risk-feeding management in a clinical area in which there have been no other similar published studies. Further work is required to assess the use of FORWARD in other clinical environments, including those where risk-feeding is less commonly encountered, employing local educational initiatives and robust evaluation. ■

Supplementary material

Additional supplementary material may be found in the online version of this article at http://futurehospital.rcpjournal.org/:

S1 – The FORWARD bundle
S2 – Information sheets for staff and for patients and their next of kin
S3 – FORWARD bed sign

Conflicts of interest

The authors have no conflicts of interest to declare.

Author contributions

All authors were part of the project team and JB was the project lead.

Ethics

Development and evaluation of the FORWARD bundle formed part of a quality improvement project registered with and adhering to the standards of the Clinical Governance Department of Guy's and St Thomas' NHS Foundation Trust (Service Evaluation 6607) and did not require submission to a research ethics committee.

Twitter

Peter Sommerville tweets using the moniker @P_J_Sommerville

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