Promoting high value inpatient care via a coaching model of structured, interdisciplinary team rounds

The professional development of early career hospital physicians may be improved by embedding an experienced physician in a coaching role during structured, interdisciplinary team rounds. This article gives a descriptive report of such a model and discusses how it may promote delivery of high-value care to adult inpatients.

Introduction

Promoting 'value' – the potential benefits of an intervention relative to its broadly defined cost – is a major focus in health care to optimize the quality and safety of care while ensuring appropriate use of increasingly scarce resources (Owens et al, 2011). The coordination and efficiency of team-based care are important contributors to high-value care of hospitalized patients. When these key attributes are compromised, length of stay, patient safety and other important outcomes may be adversely affected, reducing the quality and increasing the cost of care (Leonard et al, 2004). Since inpatient rounds on hospital wards are an essential part of care planning, they may represent a fertile opportunity for performance improvement with the potential to favourably impact the value of care delivery.

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Inpatient ward rounds are widely recognized as important to patient care. Nonetheless, they have only recently been subjected to evidence-based evaluation. Structured, interdisciplinary ward rounds – either at the bedside or in a conference room (the latter are sometimes referred to as multidisciplinary rounds or multidisciplinary team meetings) – appear to augment coordination of care and communication among care providers and thus offer a platform upon which to focus further improvement efforts (O'Mahony et al, 2007; Zwarenstein et al, 2009; O'Leary et al, 2010). Recommendations from an analysis of best practices performed jointly by the Royal College of Physicians and the Royal College of Nursing (2012) in the UK affirm the importance of structured, standardized ward rounds involving nurses, physicians and patients.

As physicians who focus on the care of hospitalized patients increasingly provide the majority of adult inpatient care at many institutions (Pham et al, 2005), they are key participants in standardized inpatient rounds. Early career consultants (or hospitalists), many directly out of residency training (equivalent to house officer level in the UK), are often thrust into their new roles with a limited understanding of the complexities of providing high-value care. Although these recently appointed consultants are well trained in core clinical competencies, they understandably lack the confidence and perspective that is acquired through experience yet are responsible for managing large numbers of complex inpatients with multiple, comorbid illnesses (Glasheen et al, 2008).

They are also charged with managing their patients using evidenced-based practice and avoiding unnecessary interventions or those offering little benefit. Their responsibilities also extend to ensuring that value is optimized in other domains. They lead the team in ensuring that quality and documentation standards are met, patient experience is optimized, and communication with all members of the health-care team, including primary care physicians, is consistently provided. The authors sought to assess, in descriptive fashion, the feasibility and the impact of incorporating an experienced physician into structured, interdisciplinary, ward rounds to coach the elements of high-value care. Towards this end, a model was created – the Broder Service (named in recognition of a former Baystate Chair of Medicine) – to pilot this concept.

Methods

Setting

The pilot was performed on one general medical/surgical ward of Baystate Medical Center, a 716-bed tertiary, academic medical center in Springfield, MA, that serves a diverse urban and rural population of nearly one million people. The pilot ward comprises 32 beds primarily managing adult inpatients with respiratory-related diagnoses and also general medical patients. Institutional Review Board approval was not required as this pilot was performed as a quality improvement initiative using de-identified data routinely collected and reported by the institution.

Team structure and function

Broder Service rounds were conference room-based and occurred 7 days per week at 1100 hours. They included the consistent participation of the Broder physician (an experienced physician coach), two ward-assigned, recently appointed consultants (i.e. physicians with less than 1 year of post-training clinical experience or new to the institution) and two ward-specific case managers, the nurse manager, a social worker, pharmacist, respiratory therapist, and bedside nurses, who entered sequentially to

discuss their patients. The room was equipped with access to the electronic health record so physicians could enter orders, when not in active patient discussions, to address issues that arose during rounds.

Rounds were scripted and standardized to specifically address patient progress (i.e. the progression of their hospital course), anticipated day of discharge based on average length of stay for the given diagnosis-related group, potential discharge needs and barriers, and review of selected quality indicators, such as venous thromboembolism prophylaxis or indwelling urinary catheter utilization.

For each scripted case, the nurse stated the patient's name, room number and admission date, the case manager then provided the working diagnosis-related group and its expected average length of stay, and the consultant briefly summarized the most relevant, ongoing clinical issues, any impediments to predicted patient progress, and the expected discharge disposition based on clinical needs. The team briefly discussed any other outstanding issues, such as social, behavioural or financial challenges.

Of note, the script was limited to the follow-up plan for patients who were being discharged that day. For all cases, actionable items were assigned to specific team members for resolution and report before or during the next rounds. The Broder physician did not provide in-depth clinical input about patients but facilitated rounds, redirecting team members to focus on the script, and used case-specific issues to provide coaching on progress optimization and on the relative value, or lack thereof, of specific clinical decisions.

The same Broder physician and consultants rotated on service for seven consecutive days. The Broder physician was assigned to two consultants and each consultant was assigned a dedicated case manager. Physicians signed their respective patient panels out to their incoming counterparts on the last day of their rotations. Each of six recently appointed consultants rotated multiple times on the Broder Service during the pilot. The Broder physicians comprised five internists and subspecialists with at least 10 years of post-training experience caring for inpatients; each completed two to four 7-day rotations on the service during the pilot.

Cohort

The Broder Service included all adult inpatients from mid-September to mid-December 2013 allocated to the geographically-designated consultants. All Broder Service patients were located on the pilot ward, but on a daily basis each consultant may have been responsible for patients on other wards; these patients were not included in the pilot. Primary outcome metrics were assessed using a comparator sample of patients on the ward during the same 3-month period from the previous year (2012). To control for outliers patients with a length of stay >20 days were excluded from the analysis.

Metrics

The pilot was primarily designed to be descriptive in nature. Broder physicians, recently appointed consultants, nurses and case managers were informally debriefed after the pilot by the lead author and asked whether they found the Broder Service of value. These comments were not formally analysed but selected, representative comments are abstracted below. Length of stay and cost per case (McKesson Performance Analytics, San Francisco, CA) were also assessed for all patients and for those with diagnosis-related groups of at least five cases during the 3-month pilot. Geometric length of stay and cost per case data were reported given the small sample size in order to further control for outlier effects.

Analysis

As this pilot was meant to be descriptive, exploratory statistical testing provided a means to identify possible associations for future research. No a priori alpha was determined, and there were no adjustments for multiple comparisons. Estimates were generated using the natural log transformation of length of stay and cost per case as the dependent variable in a linear regression model along with an interaction term between diagnosis-related group categorization and the presence of the Broder service. Marginal effects were calculated using the -margins- command from Stata v13.1 (StataCorp, LP, College Station, TX). Geometric means were calculated using the exponentiation of the model estimates. Results are primarily presented graphically with 95% confidence intervals.

Results

Overall, 381 cases were managed on the Broder Service during the 3-month pilot; the daily census per hospitalist on the Service ranged from 13–17 patients. Eleven diagnosis-related groups accounted for nearly 60% of the cases in both the pilot and the comparator periods (*Table 1*). There appear to be higher volumes of sepsis, oesophagitis and renal failure diagnosis-related groups and lower volumes of pneumonia and diabetes mellitus diagnosis-related groups in the Broder Service group. Case mix index

Table 1. Distribution of patients by diagnosis-related group across the Broder Service pilot group and the comparator group

	Broder Service *n*=381 (%)	Comparator group *n*=358 (%)	Overall *n*=739 (%)
Chronic obstructive pulmonary disease	34 (8.9)	40 (11.2)	74 (10.0)
Pneumonia	29 (7.6)	44 (12.3)	73 (9.9)
Sepsis	50 (13.1)	22 (6.2)	72 (9.7)
Bronchitis	21 (5.5)	16 (4.5)	37 (5.0)
Cellulitis	18 (4.7)	16 (4.5)	34 (4.6)
Oesophagitis	21 (5.5)	13 (3.6)	34 (4.6)
Diabetes mellitus	8 (2.1)	15 (4.2)	23 (3.1)
Renal failure	13 (3.4)	7 (2.0)	20 (2.7)
Heart failure	11 (2.9)	8 (2.2)	19 (2.6)
Respiratory failure	10 (2.6)	9 (2.5)	19 (2.6)
Pulmonary oedema	8 (2.1)	6 (1.7)	14 (1.9)
All other diagnosis-related groups	158 (41.5)	162 (45.3)	320 (43.3)

did not change appreciably between the two time periods (data not shown).

Broder rounds occurred every day of the week during the pilot; weekday rounds included all members of the care team as described above and the infrequent involvement of selected subspecialists. However, participation in weekend rounds was limited to the Broder physician, consultants, a single case manager and the bedside nurses because of staffing constraints affecting case management and several ancillary services (e.g. pharmacy, social work). The entire scripted process averaged less than 3 minutes for most cases; this was facilitated by limiting any discussion on pending discharges. The Broder physician played an important role in keeping rounds focused on patient progress and the elements of high-value care. This was accomplished through prompts and interspersed coaching in the form of 'teachable moments' engendered by case-specific issues. The Broder physician also served to engage other members of the team, such as the pharmacist, social worker or respiratory therapist, to contribute when indicated based on issues specific to their respective disciplines.

The ability of physicians to enter orders in the electronic health record during rounds helped to mitigate any potential deleterious impact on consultant workflow; consultant productivity, as assessed by relative value units, was not adversely affected by participation in the pilot (data not shown). Each bedside nurse entered rounds sequentially and stayed for consecutive discussions of all of their patients, thus minimizing untoward impact on workflow. Because the nurse manager predetermined, in 10-minute blocks, the rounding order for nurses, there was usually someone 'on deck', further enhancing efficiency.

The efficiency of Broder rounds, as assessed by the time to their completion, improved steadily over the first several weeks of the pilot from approximately 90 minutes to less than 1 hour, remaining at this level for the duration of the pilot. The improvement was associated with a learning curve during the initial rotation of each Broder physician. Similarly, Broder Service rounds on the first day of new physician rotations tended to require more time, given the need to learn the service. In the first half of the pilot, Broder physicians spent 3–4 hours per day coaching; in the latter half, as a result of progressive experience in this role, their time commitment decreased to approximately 2 hours per day plus phone availability to address specific questions.

During debriefing of the Broder physicians, several common themes emerged regarding the imperatives of the coaching role: the need to focus on system-level issues related to patient progress such as timing the use of subspecialists and on interventions that do and do not deliver value; the necessity of providing perspective on outpatient capabilities and care transitions; the avoidance of micromanaging clinical care delivered by recently appointed consultants while offering insight gained from experience; and the central importance of fostering a culture of trust, respect and transparent communication among team members. One Broder physician described his function using an analogy from sports broadcasting: 'play-by-play is done by the case manager, bedside nurse, and consultant taking care of the patient; the Broder physician provides succinct and selected color commentary'. Other representative themes regarding the value of the Broder Service also emerged through discussions with nurses, patients and consultants (*Table 2*). In general, the presence of the Broder physician engaged team members to focus on decisions and interventions likely to add value to the care of the patient.

Overall, the average length of stay for all patients managed on the Broder Service was 4.23 days compared with 4.71 days for patients managed on the unit during the same 3-month period in the previous year (P=0.029). This represents a reduction in length of stay of nearly half a day. There was a trend towards reduced length of stay across the top 11 diagnosis-related groups (P=0.25) and other diagnoses (P=0.34) (*Figure 1a*). The most prominent downward trends in length of stay were seen in bronchitis, pulmonary oedema, renal failure and respiratory failure diagnosis-related groups (*Figure 1b*). Overall, cost per case was reduced during the pilot *vs* the comparator period (P=0.37) (*Figure 2a*), most pronounced in the respiratory failure and pulmonary oedema diagnosis-related groups (*Figure 2b*).

Discussion

The Broder Service was created to leverage the perspective of an embedded, experienced clinician (i.e. the Broder physician) to optimize the delivery of high-value care. Based on his/her extensive professional experience, the Broder physician understands the broad range of clinical, social and economic issues that affect the inpatient experience, enabling him/her to coach via 'teachable moments' during structured interdisciplinary rounds. The authors' analysis of the pilot seeks to describe the experience with this novel coaching framework of interdisciplinary rounds.

Several studies have sought to examine the impact of structured interdisciplinary team rounds on various aspects of the care of hospitalized adults. Some have focused largely on assessing communication and collaboration between physicians and nurses, demonstrating modest improvements in provider sense of teamwork and communication (O'Leary et al, 2010, 2011); others have evaluated the use of checklists on efficiency and performance in the patient safety domain (Herring et al, 2011; Soong et al, 2012). There are scant and discordant data regarding the effect of such rounds on length of stay and costs (Curley et al, 1998; Wild et al, 2004). The authors are unaware of studies examining the impact of embedding an experienced physician coach in structured, interdisciplinary inpatient rounds.

Table 2. Representative verbatim quotes on the value of the Broder Service model

'The patients know that everybody is on the same page' (nurse)
'We are able to proactively address barriers to transitions of care early on so that we can discharge patients to the appropriate level at the appropriate time' (nurse)
'Nurses and hospitalists [junior consultants] bounce ideas off of each other frequently... it is like a working partnership' (nurse)
'I interact with nurses and case managers on my patients more frequently which builds trust... we work better together' (junior consultant)
'When they come in to see me, they all seem to know what's going on with my case' (patient)

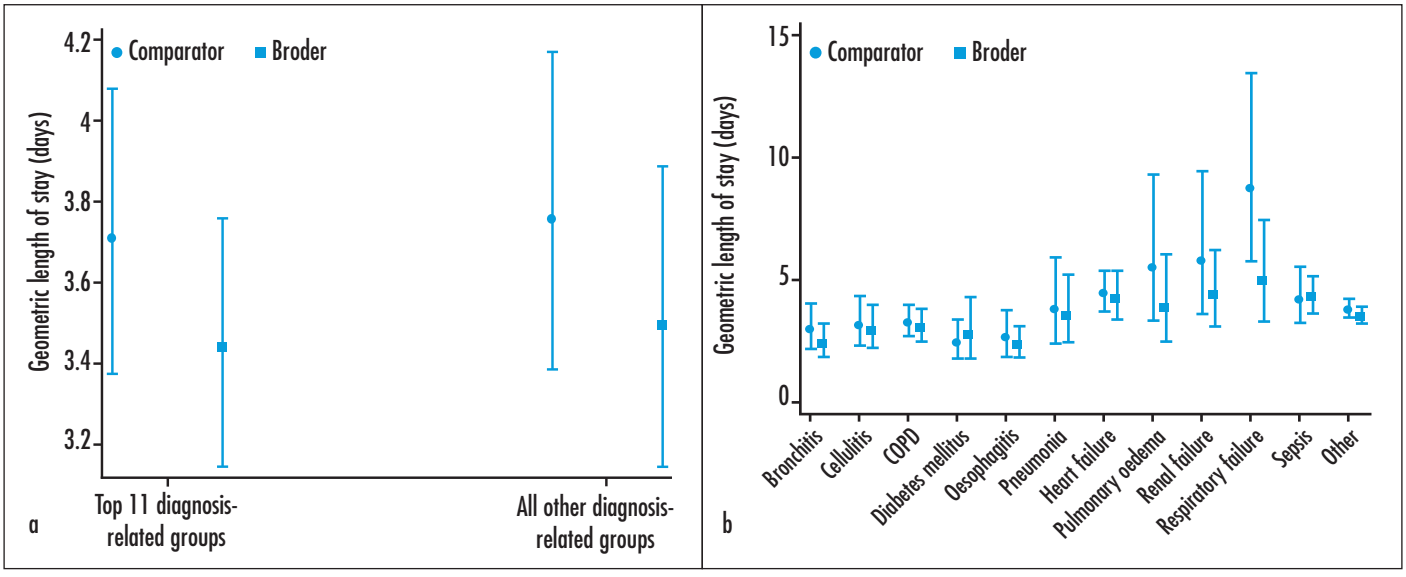

Figure 1. a. Geometric length of stay across the 11 highest volume diagnosis-related groups (diagnoses involving more than five cases) and of all other diagnosis-related groups of patients during the Broder service pilot compared with the same 11 highest volume diagnosis-related groups and other diagnosis-related groups of the comparator group. b. Geometric length of stay of individual diagnosis-related groups comparing the Broder service pilot with the comparator group. COPD = chronic obstructive pulmonary disease.

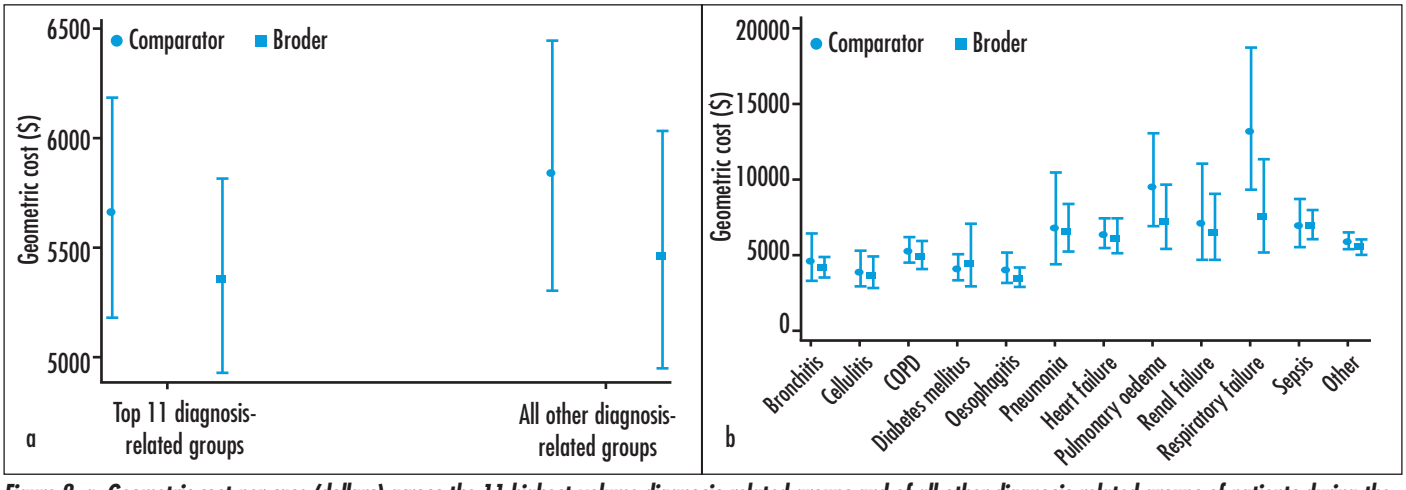

Figure 2. a. Geometric cost per case (dollars) across the 11 highest volume diagnosis-related groups and of all other diagnosis-related groups of patients during the Broder service pilot compared with the same 11 highest volume diagnosis-related groups and other diagnosis-related groups of the comparator group. b. Geometric cost per case of individual diagnosis-related groups comparing the Broder service pilot with the comparator group. COPD = chronic obstructive pulmonary disease.

Because the purpose was to pilot a coaching concept model and report on its feasibility, this pilot study was not designed to detect statistically significant differences in outcomes related to quality, efficiency or service. However, the results demonstrate that average length of stay was reduced by nearly 0.5 days during the pilot compared with the same 3-month period 1 year earlier. Trends toward reduced length of stay were observed among the top diagnosis-related groups by volume and across most distinct diagnosis-related groups.

The pilot ward is considered to have a respiratory focus; interestingly, several of the most apparent reductions in length of stay and cost per case were among respiratory-related diagnosis-related groups. The authors speculate that this may be attributed to gains in efficiency through a focus on components of patient progress, promotion of value, and communication among team members engendered by the Broder model.

Trends towards reduction in costs with the Broder Service were also demonstrated. Although reduced length of stay is a major contributor to these costs, it is possible that coaching aimed at promoting interventions that add value and avoiding those that do not, such as unnecessary testing, may also have favourably impacted costs. The authors were unable to assess this directly in this pilot; it remains a potential question for further study.

Although coaching of physicians has been described, it has largely been used in physician executive and leadership development (Horn et al, 2010; Hicks and McCracken, 2011, 2012). Gawande (2011) has written about the potential beneficial effects of physician coaching on clinical outcomes, describing his personal experience with a coach and its anecdotal, favourable effect on his surgical practice. Physician coaching using retrospective reviews of videotaped clinical events has been used as an educational approach to professional development in the surgical arena (Hu et al, 2012).

The Broder physicians provided coaching around patient-specific issues that arose during rounds; these 'teachable moments' focused largely on patient progress, such as the timing of interventions and the relative appropriateness of using inpatient *vs* outpatient resources. Several Broder physicians noted the importance of avoiding a perception of micromanaging clinical decisions while providing practical guidance based on experience. Anecdotally, the Broder physicians believe that they were successful in navigating this delicate balance, but this remains an area that merits further study.

A separate but related aspect of the Broder Service model is its potential beneficial impact on the education of recently appointed consultants. This pilot was not designed to assess this. Further research is needed to explore the potential dual benefits of the Broder Service on both high-value care and education of early career physicians.

Limitations

Several barriers to the Broder Service were revealed during this work. The vast majority of the consultants' patients were on the pilot ward; however, they regularly cared for patients elsewhere in the hospital, potentially creating workflow disruptions for integrated rounding. The institution of more rigorous geographical cohorting of doctors with their patients would mitigate these effects. Reduced case management staffing of the Broder Service on the weekends may have blunted length of stay gains, but this cannot be ascertained from the pilot.

An anecdotal but informative finding was that enhanced access and communication between case managers, nurses and consultants appeared to reduce the number of calls to the doctors but may have paradoxically increased the number of workflow interruptions. However, this may be more favourable for patient progress as it facilitates immediate attention to their needs. Although several efforts were made to minimize adverse impact on the workflow of team members, this is a vulnerable area that must be vigilantly managed to prevent rounds from becoming counterproductive. Finally, the absence of consistent, subspecialist involvement in Broder rounds was a potential barrier to optimal function, as their presence would enhance communication between providers which would be expected to further facilitate patient progress.

Conclusions

Based on this pilot assessment of the Broder Service, the authors believe that incorporating an experienced clinician to provide coaching to recently appointed consultants and the health-care team during integrated, structured rounds is feasible and may improve the value of care delivered and enhance the professional development, education and training of early career doctors. Further evaluation of this model, specifically assessing its effect on provider and staff satisfaction, resource utilization, patient experience, and statistically rigorous study of its impact on length of stay appears warranted. Such data would inform the potential dissemination and sustainability of the Broder Service model. **BJHM**

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KEY POINTS

- The authors were able to successfully implement a model of structured, interdisciplinary team rounds with an embedded experienced physician-coach on a busy, inpatient, adult medical ward.
- The Broder Service model may improve the value of care delivered and may enhance the professional development of recently appointed consultants.
- The Broder Service model appears to have a favourable impact on length of stay and cost per case.
- Further evaluation of the model is warranted to better understand its impact on patient and provider satisfaction, resource utilization and team development.