Developing a process for criteria-led patient discharge

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Maintaining optimum patient flow through acute hospital beds in the United Kingdom (UK) National Health Service (NHS) is an imperative. If the number of emergency patients requiring in-patient admission exceeds beds available, the situation becomes problematic. Crisis points at key times of day are common when acute hospitals have no available beds to accommodate patients who have presented to the hospital as an emergency.[1] Unplanned patient admissions are rising; from January 2016-2017, a 3.3% rise[2] was seen in the UK. Although the NHS has experienced extreme and sustained pressure regarding bed availability, this issue is not a uniquely British problem. Similar challenges have been reported across other developed health economies.[3] Globally, one of the solutions to improve patient flow was the introduction of performance targets ranging from 90 to 95% globally in emergency departments (ED), predicated on the assumption that faster treatment times and decision making would ensue.[4,5,6] Criteria Led Discharge (CLD) is another initiative introduced in some health care organizations to improve the timeliness of patient discharge.[7]

BACKGROUND

CLD has been described as a process where the clinical parameters for patient discharge are clearly defined using individualized criteria.[8] Once patients meet the criteria, a member of hospital team can manage their discharge from hospital.[9] Given the diversity and complexity of acute medical patients, it would be impractical, even if possible, to devise condition-based criteria from clinical pathways to guide every type of patient discharge in an acute medicine context.[10] Typically, in this emergency setting, patient discharge plans are individualized and developed on admission to hospital. If CLD is to be operationalized in acute medicine settings and risks minimized, an approach that facilitates individualization,

but ensures patient safety, might contribute to improvements such as timely discharge and accelerated patient flow.[7,11]

Purpose

This work identifies core characteristics of patient discharge criteria recorded in clinical management plans of case notes. It describes the development of a framework of core criteria for patient selection for CLD in an acute medicine context.

CONTEXT FOR STUDY

This study was conducted in an acute medicine service comprised of 4 clinical areas; an acute medicine unit (AMU) with 45 beds, 2 short stay wards each with 19 beds, and an ambulatory emergency care unit (AEC) equipped with trolleys, chairs, and clinic rooms. The length of stay differs across the 3e areas from <12 hours on AEC, 20 hours on AMU, and between 3 and 5 days on the short stay wards. Likewise, the scope of care is different in each area ranging from ambulant patients in AEC who are assessed as medically stable and ready for discharge home the same day, highly acute and medically unstable new patient admissions on the AMU, and sub-acute patients transferred from AMU to short stay wards. A typical medical patient's journey begins in the emergency department (ED), to AMU with transfer to short stay wards or, as indicated, elsewhere in the hospital.

This study was framed by 3 corporate assumptions driven by organizational priorities:

- Some medically fit patients on the short stay wards waited for a decision to discharge, and this delay could be reduced through CLD.
- If waiting time could be reduced, patient flow might improve reducing breaches of the ED 4-hour target and maximize AMU bed occupancy and patient satisfaction with care.

- Some discharges occurring late in the day (after 5pm) could be avoided by timely application of CLD.

METHODOLOGY

A systematic observational retrospective review of patient case notes was undertaken by 3 senior members of the clinical team in acute medicine namely, the senior clinical academic nurse, senior nurse manager, and lead physician. Case notes of patients (n=50) discharged from the AMU and both short stay wards during the study period were retained.

Narrative data included ward, patient's age, diagnosis, length of stay, time of discharge, and factors that caused patients to wait for their hospital discharge. Characteristics of the discharge plans were extracted and entered into a Microsoft Word table to enable charting and identification of commonalities. Interpretations of the qualitative data were clarified through discussion between reviewers. Quantitative data including time of discharge and length of delay on the day of discharge (if available) were entered into a Microsoft Excel database.

The criteria were applied to determine suitability for patient selection for CLD to assess level of concordance between raters where 15 sets of case notes were assessed independently by 3 reviewers. Data generated by this review conformed to the principles of information governance required by the Data Protection Act and Trust policies.[12] The development of the data extraction tool and case note review was undertaken in 4 phases (Supplemental Digital Content, Figure 1).

Phase 1: study scope and review questions

Six questions guided the case note review:

1. What are the commonalities documented in patient medical notes characterizing potential patient inclusion and exclusion criteria to aid patient selection for CLD?

2. Using the core criteria, how many acute medicine in-patients would be suitable or unsuitable for CLD?

3. What are the clinical characteristics commonly reported in clinical discharge plans where CLD was deemed suitable or unsuitable?

4. How long do suitable patients wait for discharge?

5. Could application of criteria for patient discharge reduce length of stay resulting in an earlier the discharge time for patients admitted to 1 of the 3 clinical areas? If so, by how much would length of stay (days/hours) be reduced?

6. What factors account for delays encountered on day of discharge?

Phase 2: prototype instrument development

Patient case notes were reviewed and data extracted were entered into a prototype data collection instrument.

Phase 3: revision of instrument

Following discussion between 2 reviewers the prototype instrument was revised until consensus was reached. Five typical categories of patient discharge were added during revision to facilitate the identification of discharge types. Using the instrument, data were systematically collected and charted from patient case notes by a reviewer.

Commonly occurring entries documented in the discharge plans were extracted to form a preliminary framework of selection criteria to differentiate suitability or unsuitability for CLD. Although individual patients present with different clinical conditions and health care needs, commonalties emerged. "Medically stable and fit for discharge" was a commonly used during daily medical reviews. Requests for investigations, specialist medical

review, and clinical decisions such as wean off oxygen and change IV to oral antibiotics were orders generated from the ward round. A ceiling of care, such as not for resuscitation, was not necessarily considered exclusion criteria for CLD. If medical care was completed, many of the remaining issues requiring completion prior to discharge related to nursing or social care. These commonalities enabled the development of a criterion framework of criteria that could be applied to judge (un) suitability for CLD. These were iteratively revisited to create a refined composite set of patient discharge criteria in the final instrument (Supplemental Digital Content, Figure 2).

Phase 4: application of the patient discharge criteria and interrater agreement

The data collection instrument was tested through data extracted from 50 sets of patient case notes by the 2 nurse reviewers. To determine the level of interrater agreement of patient suitability, or not, for CLD, the 3 reviewers used the criterion framework to independently assess a further series of case notes (n=15). The reviewers were required to answer Yes or No to assess if the patient's discharge could be criteria-led.

FINDINGS

Full concordance (100%) was achieved between the 2 nurse reviewers, indicating agreement on suitability for selection for CLD for all 15 cases. The third reviewer rated 2 of the 15 cases as unsuitable for CLD, providing 86% interrater agreement.

Number of patients judged suitable or unsuitable for CLD

When the criteria were applied hypothetically, 27 patients would have been suitable for CLD, compared to 23 patients who were unsuitable (Supplemental Digital Content, Figure 3). The largest proportion of patients where a CLD process could have been applied was for one of the short stay wards (66%) with AMU generating the smallest proportion (38.4%).

Clinical characteristics commonly reported that indicate suitability or unsuitability

Characteristics of clinical discharge plans were judged according to the criterion framework developed and tested earlier (Instrument, Supplemental Digital Content, Figure 2). Treatment objectives were judged to be sufficiently clear for suitability in 14 of the 27 patient case notes. Medical stability is prerequisite for patient discharge, it was specifically reported in 24 of the 27 patient case notes. Annotations about ongoing medical planning to aid decision-making to direct "what comes next" were only evident in 5 of the 27 sets of patient case notes. In 5 patient case notes non-medically led nursing or social care was needed (Figure 1).

The characteristics of the 23 acute medicine patients deemed to be unsuitable for CLD were convoluted by other factors, predominantly system related: reviews by specialist clinicians, eg, respiratory or specialist team, mental health (Figure 2). Waiting for a specialist review is a common occurrence delaying the clinical decision-making process once diagnostics, initial assessment, and treatment are complete. This review of case notes revealed that for some patients, initial diagnostic results failed to provide adequate information to make a clinical decision or plan care. Moreover, the patient's condition sometimes changed and further tests were required to interpret altered status.

Waiting times for suitable patients

Data were extracted from patients in the suitable for CLD category (n=27). Time of discharge was missing from 3 case notes; the overall times are illustrated for the remaining 24 patients (Supplemental Digital Content, Figure 4). The mean time suitable patients spent waiting prior to discharge was 4 hours 51 minutes, with range 50 minutes to 10 hours 22 minutes. The patient with the longest wait was awaiting results from diagnostic tests. Not all patients, however, waited for discharge in a bed; 12 patients were transferred to the

Hospital Discharge Lounge, a comfortable area where patients wait, in chairs, for their relatives, transport, and often medications. The time lag between decision to discharge and the patient's actual discharge from the hospital was often determined by length of time for medications to be prescribed, ordered, and dispensed. In addition, outstanding investigations, transport to be organized, and/or general practitioner discharge note caused delay. Essentially this means that patients may be identified for discharge early in the day, yet the time of discharge is co-dependent on processes outside the control of the discharging clinician. Moreover, the results of investigations ordered may alter the decision to discharge the patient, making them temporarily unsuitable for CLD if further medical intervention is indicated.

Application of discharge criteria in AMU context and length of stay

Patients suitable for CLD with a waiting time of above 4 hours 51 minutes were selected for analysis, as this was the mean waiting time. Patients below the mean waiting time had no discernable social care needs, could be swiftly discharged following the clinician decision, and often arranged their own transport. Data regarding the time from prescribing, spent dispensing to receipt of medications by the patient are routinely recorded in the electronic ordering system. Unfortunately this was unavailable for transportation requests, investigations orders, medical reviews, and completion of general practitioner notes. In AMU patients are more commonly in a medical process leading to a medical decision, unsurprising, given the purpose of AMU is to initiate and ideally complete a period of investigation and treatment for an acute illness episode. This process can lead to discharge or transfer to a short stay or other inpatient unit. Thus, patients are less medically stable or require a shorter episode of care than those on the short stay wards.

Possible length of stay reduction

The retrospective nature of this review based on case notes without direct observation of the individual patient makes it impossible to determine exactly what time benefits might be accrued, but future process mapping might illuminate further potential time savings. If, however, criteria for discharge had been specified for patients on the short stay ward, these would have provided staff with a window from the time of decision to discharge for the discharge criteria to be met. In this time the discharge requirements could be orchestrated, hence reducing the time spent waiting by patients on the day of discharge. In addition to the factors already identified that compromise the typical discharge process, patients often waited for their outdoor clothes to enable them to be discharged.

DISCUSSION

Based on these findings the 3 assumptions underpinning this initiative were re-examined. Proportionately more patients would have been suitable for CLD from the short stay wards than AMU. This is assumed to be the consequence of the process of selecting patients to move from AMU used to optimize patient flow. This involves selecting (forecasting) patients to move on the basis of predicting speed (length of stay needed or time) to discharge. In this study delays to discharge were usually a consequence of system delays such as waiting for medications to be dispensed. In contrast, longer waits in a bed were because the patient was not suitable (or not yet) for CLD, as they required further medical interventions (investigations or specialist referrals), medical decision making, and sometimes multiple reviews before it might be possible to define criteria for discharge, if at all. Some delays, however, could be reduced using CLD.

The application of CLD would bring little time reduction benefit due to acuity of patients admitted to AMU: it is a context where the patient is undergoing tests or observation – medical work up – to make clinical decisions. Sometimes the attending

medical team more easily achieved the decision to discharge. In this preliminary study a failure to articulate medical and discharge plans in AMU did not appear to result in impeded patient flow. The application of CLD might enhance the clarity of medical plans but could lengthen patient stay on AMU until criteria for discharge are met. This might reduce patient transfers from AMU to the short stay wards, but not necessarily speed patient transfers from the ED, in effect, slow the pull from ED and the push to short stay areas.

Late discharges (after 5pm) need further interrogation to interpret the impact on bed efficiency in acute medical settings. AMU is an area where patients are managed intensively to effect a discharge and/or transfer and maximize bed capacity efficiency. A significant number of patients were waiting for specialist reviews (not AMU medical reviews), and this delay might be most amenable to reduction. Those seeking efficient bed management can misconstrue this state as merely as waiting or delay, especially if the ultimate decision is to discharge and that discharge occurs late in the day. Any delays might be reduced by marginal gains from efficiencies in processes to accelerate the clinical decision-making process.

The role of senior physicians providing leadership for medical care and determining the criteria for discharge remains undisputed. When patient discharge goals and the parameters for discharge were explicit, confidence in the interpretation of the characteristics was possible. Non-medical staff interpreting physician plans to progress a discharge rely on clear documentation where the conditions for discharge are detailed so the delegated clinician can act. Medical plans are not synonymous with discharge plans; however, in the acute medical context, the speed and frequency of review make them less distinguishable.

There are required characteristics that determine a patient's suitability for CLD, and these could guide appropriate patient selection. These should aid clinicians in their early identification of patients and trigger the CLD process. The clarity of medical planning incorporating criteria for discharge is an area that has the greatest potential for improvements in timely discharge. Equally important are well-articulated treatment objectives, goals, or stated ranges and other parameters of treatment to direct the patient care.

The payback for speeding the time from decision to actual patient discharge from AMU is improvements in bed capacity to facilitate urgent admissions from ED. Paradoxically, moving patients from AMU and transferring to elsewhere in the system might be counterproductive. Faster flow and capacity may not be achieved if they simply shift the place where a patient is waiting. While it was challenging to determine if timesaving was possible from introducing a CLD process, it is probable that if implemented time efficiencies introduced by other parts of the system, eg, pharmacy, transport services, and timely specialist medical reviews, would bring further improvements to aspects of patient discharge.

Limitations

This retrospective case note analysis was conducted at 1 large English NHS district general hospital, which may limit the generalizability of the findings. Nevertheless, acute medicine services at this site are regarded as an exemplar of good practice when assessed using Royal College Physicians standards.[13] The retained case notes were selected on the basis of availability and therefore may have been atypical. Had time allowed, involvement of other acute medicine physicians to judge patient suitability for CLD may have identified any potential for bias. In addition, the perspective of junior physicians regarding the

development of the discharge criteria might offer further insights. Deciphering medical decision making and discharge plans to develop thei was time intensive; hence this is a small sample. This exercise was paper-based, and it would be valuable to apply the criteria to electronic health record systems.

CONCLUSION

This retrospective review of patient medical records has provided greater understanding of the complexity of discharge in acute medicine settings. It has identified where efforts might be best employed when implementing CLD to optimize timeliness of patient discharge from hospital. Ensuring medical or other criteria are satisfied takes time, which is well spent if it minimizes risk by facilitating the safe discharge of patients direct from AMU and if working up patients avoids a transfer to an alternative inpatient bed elsewhere in the hospital.

This study has provided greater understanding of some of the barriers and facilitators to timely discharge irrespective of CLD. The longest delays to patient discharge (medications to take home) must be tackled. We identified there may be little or no benefit from introducing CLD in AMU, but it may ensue greatest benefits in short stay acute medicine settings. These areas are where much of the medical management takes place and Individualized criteria for discharge could be defined by the attending clinician, then the patient discharge could be delegated to an appropriate member of the clinical team.

Clarity of medical goals, definition of clinical parameters, and anticipatory discharge plans would greatly aid the development of CLD in practice. This would enable the next step, to map the discharge process and the changes implied to operationalize CLD, to pilot this on the short stay wards. Nurses can then test the framework of criteria in practice to guide the selection of suitable patients.

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