

Developing and Evaluating Nurse led Discharge in Acute Medicine

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Abstract

Aims: To develop and evaluate nurse-led discharge criteria for a clinical decision unit in a large NHS Foundation Trust

Method: Criteria for nurse led discharge were developed for patients presenting to hospital via the emergency department with chest pain, headache and deliberate self poisoning. Data on length of stay on CDU and readmission were collected for these patient groups during a 2 month period, during which the nurse-led criteria were introduced. Following introduction of the criteria a survey was conducted to evaluate staff opinions of the new system.

Results: A trend towards reduced length of stay was noted during the month after introduction of nurse-led discharge (18.26hrs vs 20 hours $p=0.582$). Our staff survey indicated that the process was popular and has been continued since the study period.

Conclusion: Nurse-led discharge using defined criteria is feasible and popular with staff in an acute medical setting.

Keywords

Nurse led discharge, Discharge toolkit, Discharge planning, Acute medical unit

KEYPOINTS

- Nurse led discharge has the potential to reduce length of stay for specific groups of patients
- Criteria for nurse-led discharge have been developed for patients with chest pain, headache and deliberate self poisoning
- Application of these criteria enabled nurse-led discharge from our clinical decision unit (CDU)
- Nurse led discharge is popular with nursing and medical staff and should be extended to other areas of the acute medical service

Introduction

Nurse-led discharge has the potential to improve patient flow^{1,2} and is already widely used in many surgical day case units, but is less well developed in acute medical settings. Previously published work in this area^{3,4,5,6} has not been widely adopted in practice. Timely discharge is critical in maintaining patient flow in acute medical settings.⁶ Other potential benefits include raising the quality of discharge, improving the overall competence, confidence and responsibility of a ward team to discharge patients and reducing the volume of delayed patient discharges through the amalgamation of processes that drive the estimated date of discharge.³

In order to develop this process we devised discharge criteria, which would allow nursing staff in Acute Medicine to safely discharge patients following assessment by a senior clinical decision maker, such as a consultant physician or medical registrar.

The clinical decision unit (CDU) at the Royal Bolton Hospital functions as a short stay observation area for patients who have presented to the emergency department (ED). The CDU cares for patients with a variety of problems, including those with headache, chest pain and self-poisoning. A written pathway, with which the nursing staff are already familiar, has been in use for each of these conditions for a number of years.

Method

The study was designed in 3 stages: first establishing the criteria, then sampling the data and evaluating the outcome, and finally completing the study with a survey of staff attitudes. The study protocol was reviewed and approved by the R&D departments at the Royal Bolton hospital who deemed that this represented a service evaluation and that ethical approval was not required.

Establishing the nurse led discharge criteria

Prior to starting the study, we conducted a survey of all nursing staff, including charge nurses and managers on CDU and all Acute Medicine consultants. A number of key factors were identified, which influenced the subsequent development of the discharge criteria:

- The need for clear 'black and white' discharge criteria, focussed on medical rather than nursing issues
- The need to address and manage pain prior to discharge, along with take home medications.
- The need to avoid additional paperwork and checklists, therefore avoiding unnecessary workload for nursing staff.
- The need for discharge criteria to be focussed and concise

Reviewing our Trust pathways on headache, overdose and chest pain, nurse-led discharge criteria

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Developing and Evaluating Nurse led Discharge in Acute Medicine

Table 1. Nurse led Discharge Criteria. Please note that the lumbar puncture results of RBC < 2 and WCC < 1 are based on our pathology laboratory references.

Nurse led discharge on CDU:
Any patient with overdose, headache or chest pain qualifies for nurse led discharge once reviewed by a consultant or registrar
Use the following criteria:
1) Overdose
Observation period as advised by Toxbase has been completed
Parvolex treatment for paracetamol overdose NOT indicated
Parvolex treatment for paracetamol overdose completed and patient medically fit for discharge as per 'poisoning pathway'
Review by Mental Health Liaison Team or psychiatry has been completed with patient able to be discharged from CDU
Patient is haemodynamically stable
Patient information leaflet handed out
2) Headache
CT brain reported as normal/nil acute/no new changes
Lumbar puncture results show a RBC < 2, WCC < 1
Xanthochromia results (if done) will be available 24-48h after the lumbar puncture & results can be awaited while patient home
Confirm patient contact details are up to date
Analgesia for headache is available as TTO (remember: doctor's signature on medication box required)
3) Chest pain
Chest pain has resolved
There are no dynamic ECG changes between ECG 1 and ECG 2
Troponin I < 20 on two occasions or no change in troponin levels by > 30%
Clinical diagnosis refers to non-cardiac chest pain
ACS medication stopped prior to discharge home
No cardiology review required as in-patient
Analgesia for chest pain is available as TTO (remember: doctor's signature on medication box required)

were created as a first draft. The Delphi method⁷ was used to receive feedback from both consultants and nursing staff, which informed the final and revised selection of criteria (Table 1). In addition, and in line with the Medicines and Healthcare Products Regulatory Agency (MHRA), a paracetamol overdose patient advice leaflet was created (Figure 1).

All staff received an email one week prior to the launch, including the discharge criteria and the patient advice letter. The finalised criteria were then published as a laminated A3 poster, which was displayed on a well-accessible and visible wall on CDU. The criteria were within reach and functioned

Figure 1: Paracetamol Overdose Patient Advice Leaflet.

PARACETAMOL OVERDOSE

You were seen because you have taken too much paracetamol.

Taking too much paracetamol can be particularly dangerous, because it may cause damage to your liver. When buying medication over-the-counter, be aware that many preparations may contain paracetamol. So always read the label to be sure not to take too much paracetamol accidentally.

BEFORE YOU LEAVE HOSPITAL

Please think again - is there anything you didn't tell us?

If you have forgotten to tell us any of the information below, you may be at greater risk of developing liver damage:

- Are you sure about the time you took the tablets?
- How many tablets did you take?
- Did you take the tablets all at once or over more than an hour?

If you have forgotten to tell us any of this information, **please take the time now to tell us before you leave hospital.**

We have assessed you and decided that you are not necessarily at risk of damage to your liver.

However: **COME BACK AT ONCE**

If you suffer from any of the following:

- Stomach pains, nausea or vomiting
- Your skin or the whites of your eyes turn yellow
- You stop passing urine
- Have a severe headache, become confused or get very drowsy

Any of these conditions may mean that your liver has been damaged. **You must return to A&E at once.** Because paracetamol poisoning develops over a number of days, if you begin to feel at all unwell you **must return to A&E.**

as a point of reference each time a patient was admitted and discharged on the headache, overdose or chest pain pathway. All nursing staff received training on how to use the criteria and while the project was ongoing our Acute Medicine registrar acted as a point of contact for immediate support. Training was in the form of face-to-face small group or one-on-one training sessions in a side room on CDU and involved all nursing staff on CDU, including bank staff. It was structured as an informal tutorial session during which the nurse-led discharge criteria were introduced and their application explained followed by a question and answer session. The tutorial was scheduled for about 20 to 30 minutes. The A3 poster with the criteria acted as visual aid.

Data collection period and evaluation of outcome

All patients aged over 16 years of age, admitted to our Clinical Decision Unit (CDU) with headache, chest pain or deliberate self poisoning between December 2013 to January 2014 were included. The nurse-led discharge criteria were introduced during January. Only patients admitted to hospital via the

Developing and Evaluating Nurse led Discharge in Acute Medicine

Table 2. Comparison of admissions pre and post introduction of nurse led discharge. Results are given as mean +/- standard error of the mean.

	Pre nurse led discharge	Post nurse led discharge
Total of patients	183	116
Male	86 (47%)	60 (51.7%)
Female	97 (53%)	56 (48.3%)
Mean age	47.79 +/- 1.47 years	48.89 +/- 1.70 years
Chest pain	105 (57.4%)	62 (53.4%)
Overdose	56 (30.6%)	35 (30.2%)
Headache	22 (12.0%)	19 (16.4%)
Average time to transfer from A&E	2.49 +/- 0.08 hours	2.95 +/- 0.17 hours
Average length of stay on CDU	20 +/- 2.31 hours	18.26 +/- 1.36 hours p=0.582

ED were included; patients referred to the hospital by their GP were excluded, as these patients followed a different assessment and treatment pathway. Patients discharged by the medical team following introduction of nurse-led discharge criteria were also excluded from the study.

Data collected included baseline demographics, admission and discharge days and times and length of stay on CDU. Assembly of the quantitative data relied on both review of our admission system, Isoft, and review of notes in selected cases to clarify admission details. Data were analysed using IBM's Statistical Package for Social Sciences (SPSS) version 19. Data were reported as mean +/- standard error of the mean. We used the independent samples t-test (two tailed) to investigate statistical significance.

Survey of staff attitude

Following completion of the project and data collection, a staff satisfaction survey was conducted. This included all nursing staff on CDU as well as all five Acute Medicine Physicians. The survey was designed to explore ideas, impressions, opinions and potential improvements and so was conducted by our Acute Medicine Registrar. Interviews were conducted with all nursing staff and Acute Medicine consultants enhanced by follow-up emails to allow for further comments and thoughts to be voiced.

Results

A total of 299 patients were identified in the study period of whom 146 (48.4%) were male; demographic data are summarised in table 2. The average length of stay of any patient on CDU with one of the three conditions (pre- and post- introduction of discharge criteria) was 19.33 +/- 1.52 hours. The length of stay

on CDU prior to introducing the criteria was 20 +/- 2.31 hours, which reduced to 18.26 +/- 1.36 hours post discharge criteria (see table 2). This difference did not achieve statistical significance (p = 0.582).

The survey conducted at the end of the project revealed that all staff found the criteria to be useful, user-friendly, easy to understand and to apply and relevant to the majority of admissions to CDU. Staff felt that use of nurse-led discharge criteria streamlined the patient journey through CDU and facilitated smooth and safe discharge, which was popular with patients. Nursing staff felt they gained additional skills and competencies around issues of discharge, enhancing their job satisfaction, and improving communication among team members. Consultants and nursing staff felt that it also allowed more rapid assessment of the potentially unwell patients waiting in the Emergency Department. All staff unanimously agreed to continue the use of the criteria beyond the study period.

Discussion

We have identified criteria which may be applied in a Clinical Decision Unit setting, to enable nurse-led discharge for patients presenting to hospital with chest pain, headache and deliberate self poisoning. Use of these criteria resulted in a small, albeit non-significant, reduction in length of stay for patients undergoing nurse-discharge. Small reductions in length of stay can have a significant impact on patient flow in the emergency department. Furthermore, nurse-led discharge enabled medical staff to focus on other clinical duties within the acute medicine and emergency department.

Previous literature on nurse-led discharge relates predominantly to day surgery; indeed, Graham et al showed that patients post laparoscopic surgery were more likely to be discharged on the day of surgery with nurse-led discharge when compared to patients discharged by doctors.⁸ A study in 2006 at the Walton Community was less favourable: patients often did not meet the nurse-led care admission criteria, patients and relatives felt disengaged, discharges were rushed and pressured due to need to admit new patients and the number of failed discharges was comparably high.⁹ However other studies^{10,11,12} including a literature review conducted by the Agency for Clinical Innovation in 2013,¹³ have concluded that nurse-led discharge reduces length of stay, increases the percentage of discharges that occur before admissions arrive, increases weekend discharges, increases patient and staff satisfaction, improves quality of discharge planning, resulting in improved patient care and has no discernible negative impact on patient readmission rates. Although reattendance rates were not formally

Developing and Evaluating Nurse led Discharge in Acute Medicine

assessed during our service evaluation, retrospective review of our CDU admissions book revealed that none of the patients discharged by nurses were readmitted to CDU during the 30 days following their initial attendance. This is encouraging, but does not preclude their having reattended hospital via a different route. A more detailed evaluation of hospital reattendance and readmissions rates, according to the method of discharge, would be worthy of study.

The timing of this study may have influenced our results. Nurse-led discharge was introduced during January, which coincided with a period of extreme pressures on patient flow, and high sickness level among nursing staff on CDU. The need to train new staff in the use of the discharge criteria reduced the numbers of patients in whom these could be applied. This may have under-estimated the benefits of this new process. Furthermore, in many cases it was recognised that the main factor preventing

discharge was outside the control of the medical or nursing staff. The need for pain to be controlled prior to discharge was a key factor for patients with chest pain and following lumbar puncture. For patients admitted following overdose, discharge was commonly delayed by the need for review by the mental health team. The recent introduction of a Rapid Assessment, Interface, Discharge (RAID) team, has improved this.

Discussions with staff indicated a high level of satisfaction with the process, which has continued following the study period. Although patient satisfaction was not formally assessed, staff commented that the reduction in delays for patients was popular; this is worthy of further study.

Conflict of Interest

The authors certify that there is no conflict of interest regarding the material discussed in the manuscript. The study received no financial support or funding.

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