

Using non-geriatric clinical indicators in a department of rehabilitation and aged care

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Abstract

We describe an audit using Gastroenterology Clinical Indicators (CIs) to measure quality of care for older patients with gastrointestinal haemorrhage. The gastroenterology CI for gastroscopy within 24 hours of admission was 60%, it was 70% for diagnosis of a cause of acute gastrointestinal bleeding after upper gastroscopy, and it was 30% for death after blood transfusion in a geriatric restorative unit. We discuss whether it is appropriate for a hospital department (Geriatric Medicine) to use the CIs for the specialty (Gastroenterology) providing the service to measure the quality of service being provided. This may be a useful approach given the trend towards cost recouping between different clinical departments.

Aim

The aim of the audit was to determine the quality of care provided for acute gastrointestinal haemorrhage in the Department of Rehabilitation and Aged Care (DRAC). Quality of care would be determined by applying Gastroenterology Clinical Indicators for upper gastrointestinal endoscopy procedures received by DRAC patients. The number of upper gastrointestinal endoscopies performed in DRAC at Sir Charles Gairdner Hospital (SCGH) between Jan 2000 and June 2000 would be determined. Clinical data would also be obtained for a combined departmental audit with the Department of General Medicine. This audit will review clinical parameters of Gastroenterology care and service, and was based on criteria developed by the Royal College of Physicians (1992) and Wexler (1989).

Background

DRAC, at Sir Charles Gairdner Hospital in Western Australia, provides a service to the aged population of the North Metropolitan area. It provides assessment and management of medical, social and psychiatric problems of the aged population (greater than 65 years) in the acute, rehabilitation and long term care settings.

The policy on admissions to DRAC from the Emergency Department (ED) covers patients with medical problems who have been DRAC inpatients in the previous six months and all patients aged over 90. Acute patients in the hospital from other specialties (surgical and medical) who require rehabilitation are transferred to DRAC to undergo rehabilitation before discharge. These patients may be considered for transfer to restorative care in a peripheral hospital, or to long term residential care. Patients for rehabilitation admitted from the ED are likely to be admitted to outlier wards awaiting transfer to the rehabilitation wards due to bed shortages.

Patients admitted to DRAC with a gastrointestinal haemorrhage are likely to be at increased risk for poor outcomes given the high comorbidity rate in this population. The Geriatric Rehabilitation wards are ward C14 and C16 in the 'C' block of the hospital. There are 30 beds with 6 nurses and a nurse co-ordinator on the day shift in each ward. There are 6 nurses on the evening shift with 3 nurses during the night in each ward. The junior medical staff consists of 3 ward registrars and 3 interns who clerk and manage patients on ward C14 and C16 as well as any outlying geriatric medicine inpatients. There were 1463 DRAC discharges (multi-day separations) from SCGH in the period 1999-2000 (DRAC statistics for 1999-2000). These patients used 30577 bed-days. The average length of stay was 20.9 days.

The Gastroenterology Clinical Indicator assessment process for patients on C14 and C16 was studied by the use of clinical indicators developed by the Royal Australian College of Physicians (RACP) in conjunction with the Australian Council of Health Care Standards (ACHS) in 1999. The definitions of the indicators are given below.

Indicator Topic: Management of patients admitted with haematemesis and/or melaena who received a blood transfusion.

Rationale: Haematemesis and melaena are common symptoms necessitating admission to hospital and often indicate significant potential morbidity.

Definition of terms: Patients with haematemesis and/or melaena are included. Patients with oesophageal varices during this admission are excluded. Endoscopic therapy refers to measures to control bleeding by application of heat, energy or an injection of pharmaceutical agent during endoscopy.

Type of indicator:

These are comparative rate-based indicators addressing the management and outcome of patient care.

Indicator Data Format:

CI No. 3.1

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion and have a gastroscopy within 24 hours of admission.

Denominator: The total number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

CI No. 3.2

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena who receive a blood transfusion, who are discharged with a specific diagnosis, that explains the cause of bleeding.

Denominator: The total number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

CI No. 3.3

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena who receive a blood transfusion, for whom there is documented evidence that a member of surgical staff has been notified of their condition.

Denominator: The total number of patients admitted to hospital with, haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

CI No. 3.4

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion, and have an operation during the same admission.

Denominator: The total number of patients admitted to hospital with, haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

CI No. 3.5

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion and endoscopic therapy, who subsequently have an operation, during the same admission.

Denominator: The total number of patients admitted to hospital with, haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

CI No. 3.6

Numerator: The number of patients admitted to hospital with haematemesis and/or melaena who receive a blood transfusion and subsequently die during the time period under study.

Denominator: The total number of patients admitted to hospital with haematemesis and/or melaena, who receive a blood transfusion during the time period of study.

Gastroenterology CIs No. 3.1 and 3.2 are positive clinical indicators, which indicate good quality care when the CI score is high. The rationale regarding positive and negative clinical indicators has been described by Loh and Donaldson (2000).

The negative CI for gastroenterology is CI No.3.6, which measures mortality during the period under study. The higher this CI, the worse are the patient outcomes. This is an outcome indicator not a process indicator, and it is dependent on patient characteristics. The patient may have other ongoing illnesses which may cause morbidity during the procedure. Mortality will be dependent on the severity and extent of these other pathologies rather than the quality of procedure measured.

The rationale regarding outcome, process and structural clinical indicators has been discussed by Loh and Donaldson (2000). Outcome indicators are less useful for comparison between health care organisations and units as they are dependent on the morbidity of patients presenting for care. The CIs No. 3.3, 3.4 and 3.5 are not pure process clinical indicators as the need for surgical review and therapeutic procedures is often dependent on patient characteristics. Therefore surgery after gastrointestinal haemorrhage is an outcome indicator which is dependent on the severity, type and source of the haemorrhage. Furthermore, not all older patients who need surgery are referred as they may have co-morbid diseases that markedly increase the risk of post-operative mortality.

Method

Head sheets coded for upper gastrointestinal endoscopy over the studied period were requested from medical records. The term 'gastroscopy' from the CI definitions was equivalent to an 'upper gastrointestinal endoscopy' from coding. In order to ensure adequate sampling for the audit, head sheets coded for haematemesis, melaena and blood transfusion were also requested.

Head sheets were audited for indications for upper gastrointestinal endoscopy, haemoglobin (HB) levels before gastroscopy and after gastroscopy, blood pressure before gastroscopy, treatment intervention, risk factors for gastrointestinal bleeding (warfarin therapy, aspirin therapy), source of admission, discharge destination and time to gastroscopy.

The defined CI was then calculated for the subjects in the audit. There are six CIs for gastroenterology but only three (CIs No. 3.1, 3.2, 3.6) were used in this audit. The other three CIs (3.3, 3.4, 3.5) required an acute surgical or procedural intervention that did not occur frequently with the patients studied.

The audit also included a search of the Medline, HealthSTAR and CINAHL databases. They did not produce any literature defining the use or results of clinical indicators to measure quality of gastroenterological services, provided.

Results

There were 37 eligible patients with the specified coding as defined in our methods prior to our review. There were 31 head sheets available for review.

There were 25 patients who had a gastroscopy. The remaining 5 patients had haematemesis but no endoscopic procedure and one patient had diarrhoea investigated with a sigmoidoscopy. The latter procedure is a lower gastrointestinal procedure and was a head sheet recall error or a coding error. The head sheet recall rate was 31/37 or 84%. The average age of the patients was 84 years old.

Table 1: summary of the cases in the audit

Head Sheets coded for gastroscopy or haematemesis or melaena	37
Number of Patients' Medical Notes Accessed	31 (84%)
Average age of patients (years)	84

There were 10 patients who received blood transfusion prior to endoscopy. There were 3 transfusions for anaemia with HB less than 80 grams per litre (g/L). There were 2 transfusions for haematemesis with HB less than 80g/L. There were 2 transfusions for haematemesis and melaena with HB less than 80g/L. There were 3 transfusions for melaena with HB less than 80g/L.

CI No. 3.1

Six patients who had a transfusion received a gastroscopy within 24 hours of admission. Ten patients had a blood transfusion on admission. The CI result was therefore $6/10 \times 100 = 60\%$.

One patient had a transfusion but declined gastroscopy. Three of the patients who received blood transfusions had an endoscopy at 48, 72 and 96 hours after admission respectively and were thus not entered into the numerator for this CI.

Table 2: results for CI No. 3.1

Patients in audit who received blood transfusion	10 (32%)
Patients with transfusion with gastroscopy within 24 hours	6 (60%)
Patients with transfusion who refused gastroscopy	1 (10%)

CI No. 3.2

Seven patients who had a blood transfusion had a diagnosis for the cause of gastrointestinal bleeding from gastroscopy. Ten patients had a blood transfusion on admission. The CI result was therefore $7/10 \times 100 = 70\%$.

The diagnosis on gastroscopy for the 7 patients were single cases of duodenal ulceration, Mallory Weiss tear, haemorrhagic ulcerative esophagitis, ulcerative oesophagitis and 2 cases of gastritis. There was a case of duodenal ulceration, oesophagitis and gastritis in one patient. Two patients remained undiagnosed and one refused endoscopy.

Table 3: results for CI No. 3.2 and 3.6

Patients with transfusion who had a diagnosis on gastroscopy	7 (70%)
Patients with transfusion without a diagnosis for GIT bleeding on gastroscopy	2 (20%)
Patients with transfusion who passed away during audit	3 (30%)

CI No. 3.3, 3.4, 3.5

None of the patients who had a blood transfusion had a documented referral to the surgical team on duty for the day in the progress notes. Verbal referrals may have been performed but this was not documented in the progress notes. However, the auditors did not check for formal consult letters to the surgical team.

There were no patients who had a surgical procedure. One patient who did not have a blood transfusion had an endoscopic division of a pharyngeal pouch. She did not have gastrointestinal haemorrhage but had problems with swallowing.

CI No. 3.6

Three of the ten patients who had a blood transfusion died during the period of the study. The CI result was therefore $3/10 \times 100 = 30\%$.

One patient was discharged to a nursing home but died on a second admission during the 6-month audit from aspiration pneumonia. Two patients died during the admission from causes unrelated to gastrointestinal haemorrhage (stroke and pneumonia respectively).

There were 4 patients who did not have a blood transfusion but had an endoscopy. Of these, 2 patients had an endoscopy within 24 hours and 2 within 48 hours of an indication. There were 11 patients who had an elective inpatient endoscopy with elective being classed as greater than 96 hours after the indication. None of these patients were hemodynamically unstable. One patient had an elective out patient endoscopy for melaena.

Discussion

The need for transfusion in the DRAC patients was based on clinical parameters such as blood pressure and haemoglobin levels. However, once it was decided a blood transfusion was required, a CI was used to determine if good quality of care was provided for the geriatric patients. This meant a timely gastroscopy or therapeutic procedure.

There were no surgical procedures performed on the patients who had a blood transfusion during this audit. One patient who had severe anaemia refused an endoscopy. As the number of surgical procedures performed after blood transfusions were low, the clinical indicators which looked at these procedures after blood transfusion were not used.

It was a useful exercise to use the Gastroenterology clinical indicators within DRAC. For the studied period, there were 10 cases of acute gastrointestinal haemorrhages who required blood transfusion followed by urgent upper gastrointestinal endoscopy.

The throughput of acute gastrointestinal haemorrhages was low as measured by the hospital morbidity coding for upper gastrointestinal endoscopy, melaena, haematemesis and blood transfusion. There were delays after blood transfusion. There were 3 patients who had a significant delay (48, 72 and 96 hours to endoscopy respectively) after blood transfusion. The patients were stabilised with a blood transfusion and medical therapy (started on anti-ulcer medications known as proton pump inhibitors) prior to procedure.

The gastroenterology clinical indicators have been designed for an Acute Gastrointestinal Haemorrhage unit with a high throughput of acute severe haemorrhages. Although anecdotal evidence from clinicians suggested that there were more cases of severe gastrointestinal haemorrhage requiring acute treatment at DRAC, this was not shown in the audit.

The quality of gastroenterological care given to the small number of cases of acute haemorrhage in DRAC appeared to be adequate with clinical indicator scores of 70% for timely gastroscopy, 60% for appropriate diagnosis of cause of bleeding and 30% for mortality.

Higher scores for the first two indicators indicate good quality of care. This may be debatable in a geriatric setting as some of these older patients have chosen to have no intervention. Lower indicator scores on the mortality indicator would indicate better quality of care. However, the cause of mortality in the 3 cases who died during the audit was not directly related to the gastrointestinal haemorrhage. The question of mortality in this group of patients needs to be considered further.

The admission of patients away from the home ward of the geriatric medical team may be seen as a risk factor for a poor outcome. However, the analysis presented here would suggest that the patients received adequate care. The establishment of an Acute Medical Assessment Unit at SCGH since this audit has meant that these patients now receive intensive medical input (two consultant ward rounds daily) for the 48hrs following admission and prior to transfer to DRAC.

In the absence of a specific Geriatric CI to measure quality of gastroenterological care for acute gastrointestinal haemorrhage in DRAC, the current Gastroenterology Clinical Indicators were used as a surrogate. Whether it would be appropriate to do this as a matter of routine is debatable and needs review by the organisations responsible for the development of clinical indicators.

In general, is it appropriate to use clinical indicators designed for one medical specialty to measure quality of care provided by that specialty to patients in another specialty? Clinical indicators were designed primarily to measure quality of care for patients within that specialty. The clinical indicators would allow comparison between hospitals for that specialty. The use of gastroenterology clinical indicators to measure quality of care provided by the gastroenterology department to DRAC is a new idea in this hospital.

The use of Gastroenterology Clinical Indicators to measure quality of gastroenterology acute haemorrhage service in geriatric patients is an important matter. There are many instances where departments/units in a hospital wish to use a yardstick to measure the quality of service provided by another specialty - for example, cardiology, endocrinology or geriatric medicine. Is it appropriate for the auditing department, Geriatric Medicine, receiving the services to use the clinical indicators for the specialty, Gastroenterology, providing the service to measure the quality of service being provided to Geriatric Medicine? This question is being asked by many hospital departments/units receiving services from another department/unit within the hospital. The absence of alternatives methods make clinical indicators attractive in an era of cost recouping between clinical departments.

References

Department of Rehabilitation and Aged Care 2000, 'Departmental Statistics 1999-2000'. *Sir Charles Gairdner Hospital*. Verdun St. Nedlands.

Loh PK & Donaldson MD 2000, 'Improving clinical indicators in Acute Admissions to the Dept of Geriatric Medicine', *Australian Health Review*; Vol 23 no 2, pp 169-176

Royal Australian College of Physicians and the Australian Council on Health Care Standards 1998, 'Report on the RACP and the Australian Council on Health Care Standards and Care Evaluation Program. Internal Medicine Indicator Set. Internal Medicine Clinical Indicators (version 3) August 1998', *Fellowship Affairs* 1999, vol 18 no 2, pp 11 - 14.

Royal College of Physicians 1992, 'Guidelines for good practice in an audit of the management of upper gastrointestinal haemorrhage: Report of a joint working group of the British Society of Gastroenterology, the Research Unit of the Royal College of Physicians of London and the Audit Unit of the Royal College of Surgeons of England', *Journal of the Royal College of Physicians of London*, vol 26 no 3, pp 281-9.

Wexler RM 1989, 'Quality Assurance: an overview and outline for gastrointestinal endoscopy', *American Journal of Gastroenterology*, vol 84 no 12, pp 1482-7.