

Improving clinical indicators in acute admissions to the Department of Geriatric Medicine, Royal Perth Hospital

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Abstract

Clinical indicators are an important component of quality assessment of clinical services. We outline the strategies used in the department of Geriatric Medicine at Royal Perth Hospital (RPH) to report on and improve the results. The clinical indicator for assessment of cognitive function had improved from 19% in September 1998 to 64% in February 1999. The clinical indicator for assessment of physical function has been maintained at 80%. There have been revisions to the definitions of the clinical indicators for 1999. The current clinical indicators used in this department can be modified for comparison nationwide amongst geriatric units.

Background

The Department of Geriatric Medicine at RPH in Western Australia provides a service to the aged population of the Inner City and the East 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 setting.

Acute patients are admitted, assessed, treated and stabilised before going home, transfer to restorative care, or to long term residential care. The geriatric ward that provides this service is ward 7B in the main block of the hospital. There are 21 beds and 6 nurses per day and evening shift with 2 nurses during the night. The junior medical staff comprise 3 registrars and 3 interns who clerk and manage patients on ward 7B, as well as the outlying geriatric medicine inpatients. There were 1609 Geriatric Medicine discharges from RPH in the period July 1997 to June 1998 (Department of Geriatric Medicine 1998). These patients utilised 14828 bed days. The average length of stay was 9.2 days with the national average length of stay being 9.5 days.

The assessment process for aged patients on ward 7B was studied by the use of two clinical indicators developed by the Royal Australian College of Physicians (RACP) in conjunction with the Australian Council of Health Care Standards (ACHS), as follows:

- percentage of admissions to a geriatric ward that have an assessment of physical function.
- percentage of admissions to a geriatric ward that have had an assessment of cognitive function.

The assessment involved the use of the Barthel Index (Mahoney 1965) or its refinement the Modified Barthel Index (Shah 1989) for physical function. This is performed by nursing staff or occupational therapists.

The minimal assessment of cognitive function was the Abbreviated Mental Test Score (AMTS) from Hodgkinson (1972). Acceptable alternatives were the Folstein's Mini Mental State Examination (Folstein 1975) or the Information Orientation Score (Pattie 1979). This is performed by junior medical staff.

The idea of clinical indicators

In the past, reliance has been placed on the clinical judgement of physicians to ensure patients received high quality of medical care (Brook 1996). This was based on the monitoring of patient deaths through "Death Reviews" and the performance of physicians with "Peer Reviews". However, the current trend is towards more objective forms of measures of quality of care or performance by the use of clinical indicators. Collopy *et al* (1995) suggested that the three requirements for developing a clinical indicator were that relevant data was available, the measure be achievable and that it be relevant to clinical practice. The quality of the level of care provided can be assessed at several levels from an individual professional level to a hospital level. In this clinical audit we have confined it to an individual and a speciality unit level.

Clinical indicators are used to determine the level of performance or quality of care in a health organisation. They may measure the process, structure or outcomes of the health organisations activities (Brook 1996). Process indicators measure the quality of encounters between patients and the system, such as the quality of assessments or tests ordered. Outcome indicators measure the improvements in the patients status after intervention, for example symptoms or mobility after treatments. Structural indicators are characteristics of the staff or hospital, such as patient-to-physician or patient-to-nurse ratios.

Some clinical indicators may have a denominator and a numerator. The denominator is the total input and the numerator is the output. The ratio of the input to output gives an idea of the performance relative to the inputs.

The output maybe positive or negative. For example, for infections after a surgical procedure the numerator could be the number of reinfections and the denominator the total number of operations. In this case the numerator is a negative outcome and the measure of quality in this case would be a low infection rate. This means a low numerator (infections) for a large denominator (operations performed).

The numerator may be a positive outcome such as the number of patients with myocardial infarctions who had appropriate timely treatment with thrombolytic therapy. Then it would be a measure of good quality or performance if the numerator (number of patients who received timely appropriate treatment) was large compared to the denominator (total number of patients admitted who had myocardial infarcts).

The Geriatric Clinical Indicators have recently been revised. A new version was published in the April 1999 edition of "Fellowship Affairs" a publication of the Royal Australian College of Physicians. The revised definitions are set out below.

Assessment of Cognitive Function (RACP & ACHS 1998)

Rationale: Altered mental state is frequently seen in elderly patients and is often a major factor influencing outcome. Mental function assessment should be made on admission or during admission when more appropriate, within a geriatric medicine or geriatric rehabilitation unit.

Type of Indicator: This is a comparative rate-based indicator addressing the process of patient care.

Numerator: The number of patients admitted to geriatric medicine or geriatric rehabilitation unit for whom there is documented assessment of mental function on admission or during admission when appropriate.

Denominator: The total number of patients admitted to a geriatric medicine or rehabilitation unit during the time period under study.

Assessment of Physical Function (RACP & ACHS 1998)

Rationale: Patients who are admitted to geriatric medicine or geriatric rehabilitation unit must have documented objective assessment of physical function. Comprehensive functional assessment and re-assessment are vital to planning appropriate treatment programs and should be done at least twice during an inpatient stay.

Definitions of Terms: Documented assessment of physical function refers to an objective written assessment of physical function in the patient record, the minimum requirement being assessment of mobility, gait and continence. Assessment (and reassessments) of physical function must be performed.

Type of Indicator: This is a comparative rate-based indicator addressing the management of patient care.

Numerator: The number of patients admitted to a geriatric medicine or geriatric rehabilitation unit for whom there is documented objective assessment of physical function on admission, and at least once during the inpatient stay.

Denominator: The total number of patients admitted to a geriatric medicine or a geriatric rehabilitation unit during the time period under study.

Methodology

All patients admitted to ward 7B over the month of February 1999 were reviewed to determine the number of patients who had assessments of cognitive and physical function. The patients' notes were requested and audited for written assessments of cognitive and physical function. This could be in the form of an imprint or stamp with the required assessment tool – Modified Barthel's Index or an AMTS.

Also included as evidence of documentation were Occupational Therapy forms with a Barthel's index for physical assessment. Other forms of mental state examination such as Folstein's test sheets were also included.

A single documented assessment of physical and cognitive function was required as a positive score for each respective indicator. The results were then tabulated and analysed. This method of clinical audit was based on the methodology developed in the September 1998 clinical audit of ward 7B admissions (Guthridge 1998).

Results

55 patients were admitted to ward 7B in the month February 1999. Notes were available for 45 of these patients, giving a recall rate of 81%. Reasons why notes were not accessed were because they were at peripheral hospitals, had been requested for an outpatient clinic or were being coded in the Medical Records Department.

Table 1

Number of Patients Admitted to ward 7b Feb 1999	55
Number of Patients' Medical Notes Accessed	45 (81%)

Physical assessment by use of Barthel's Index was performed in 36 out of the 45 patients reviewed who were admitted to ward 7B. The clinical indicator for assessment of physical function was therefore $36/45 \times 100 = 80\%$.

There were 30 Barthel's stamps in the notes. 6 Barthel's assessments had been performed by Occupational therapist (OT) so there were no imprints in the notes. The OT assessments were recorded in OT assessment sheets and these included a comment on the level of function. 16% (6/36) of the Barthel's scores were performed by an occupational therapist. In general, if a Barthel's score had been performed by OTs, the assessment was not repeated by nursing staff.

Table 2

Patients who received documented physical assessment	36 (80%)
Patients who received nursing assessment	30 (64%)
Patients who received OT assessment	6 (16%)

Cognitive assessment was performed in 29 out of the 45 patients. The clinical indicator for assessment of cognition was therefore $29/45 \times 100 = 64\%$

36 out of the 45 patients (80%) had an imprint of the AMTS placed in the notes by the ward clerk in ward 7B. Of these, only 26 out of the 36 (72%) had been filled in by medical staff.

There were 3 non-AMTS cognitive assessments made of the patients. Of these, two (6%) were Folstein's Mini Mental State Examinations and one (3%) was the Information and Orientation Score (IOS).

One patient refused to cooperate with the cognitive assessment and requested early discharge. 3 patients had a recent cerebrovascular accident, and were unable to have cognitive function assessments because of dysphasia or decreased level of consciousness. There was no apparent reason why no formal cognitive testing had been performed in 4 of the patients.

Table 3

Patients who received documented cognitive assessment	29 (64%)
Patients who had an AMTS in imprint in the notes	36 (80%)
Patients who had the AMTS imprint filled in	26 (58%)
Patients with other type of cognitive assessment	3 (9%)

Analysis

The overall rate of cognitive assessments has improved from 19% in September 1998 to 64% in February 1999. The rate of physical function assessment has been maintained at 80% between September 1998 and February 1999.

In the September 1998 audit, Guthridge (1998) suggested that the results of the audit should be presented to the staff and their importance emphasised. The importance of mental state assessment of patients admitted was made known to junior medical staff at monthly Death Review meetings. The ongoing importance of physical function assessment was communicated to nursing staff. The ward clerks on ward 7B were encouraged to place the stamp of the physical and functional assessments in all patients who were admitted to that ward. In order to improve the low rate of cognitive assessments, more emphasis was made of the importance of cognitive assessments on admissions prior to discharge.

It had been noted in the audit that patients transferred from other wards in the hospital to ward 7B did not have a cognitive assessment performed. Ward clerks were encouraged to insert the cognitive assessment stamp on the notes of these patients transferred from other wards. Patients who had repeated admissions frequently did not have repeat cognitive assessments if they had a perfect score on a recent admission. According to the criterion (RACP & ACHS 1998) each admission must have a cognitive assessment irrespective of the score or frequency of previous admissions.

The repeat audit performed in February 1999 showed improvements in the clinical indicator for cognitive assessments as a consequence of presentation of clinical indicator data, education regarding importance of data and tightening of assessment procedures. These simple strategies are the start of a feedback loop which will improve quality of care on the geriatric ward. It is hoped that this will lead in due course to the geriatric unit on ward 7B being able to achieve scores close to 100% on indicators of physical and cognitive function.

As noted above, revisions have recently been made to the definitions of the clinical indicators for geriatric medicine. The current methodology can be modified in line with the revisions to allow for comparison nationwide amongst all the geriatric units. Alternatively, the methodology can be maintained and the clinical indicators used for internal comparisons.

To bring the indicators in line with the current definitions, certain adjustments would have to be made. All patients admitted to ward 7B will have to be assessed. This may require a prospective sampling of medical notes as it was difficult to obtain all the medical notes of the patients via recall through the Medical Records Department. The assessment of physical function with a Barthel's will have to be performed twice on each patient – on admission and on discharge.

It is likely that clinical indicators will have an increasing role in quality and performance management practices of hospitals in Australia. Developing a protocol at an early stage and collecting data to this end will facilitate the process. Furthermore, the development of a quality enhancing loop will hopefully cause an upward spiral in the clinical indicators measured.

Some further changes need to be considered. It might be advisable to undertake a prospective collection of data with review of patient notes at time of discharge rather than recall notes from medical records storage. Results should be fed back to nursing and medical staff.

Medical staff should be encouraged to document all cognitive assessment for all patients regardless of the score. Nursing and occupational therapy staff should be encouraged to aim for two physical assessments for each inpatient stay. Functional assessment could be co-ordinated by occupational therapists and nurses to achieve two physical assessments for each inpatient stay. Finally, it is advisable to repeat clinical audits of cognitive and physical assessments at regular intervals to maintain continuity of the feedback loop.

Discussion

This approach to quality improvement is not new but has previously been met with scepticism by medical staff (Chassin 1996). Quality improvement was seen as a 'witch-hunt' by some of them. This scepticism is increased by the paucity of evidence on the clinical benefits of clinical indicators. Many years of physician training amongst medical staff has placed emphasis on evidence-based decision making. This evidence is based on randomised controlled trials comparing therapy versus controls. For example, the Cochrane Library (Mulrow & Oxman 1997) seeks out and analyses these trials providing a comprehensive summary of the evidence available for the management of a specific medical problem. This kind of evidence is not available for quality improvement activities in Geriatric care.

Clinical indicators allow clinicians to compare quality and performance amongst their peers without fear of reprimand. Results can then be used to provide information for more quality improvement. For example, a geriatrician in a hospital in Western Australia with a lower clinical performance indicator score for cognitive assessment compared to a counterpart in Victoria may review and re-engineer its clinical assessment process with suggestions from Victoria. Geriatricians in particular, value these measures in assisting and determining criteria for clinical decision making. For example, a high clinical indicator score for assessment of physical function would suggest that the process of determining the care needs of the patient would be performed prior to discharge from hospital. These assessments are crucial for discharge planning decisions on patients with multiple medical problems.

Clinical indicators promote a better understanding of the clinical process. For example, patients transferred from other wards to ward 7B at RPH were not getting a cognitive assessment by medical staff. There was a blind spot in the clinical process for geriatric assessment and care which was located by the clinical audit for geriatric medicine Clinical Indicators. This blind spot was not corrected by a single correction but a multiple set of corrections along the clinical assessment process. This involved ward clerks putting stamps in the notes, junior staff remembering to do the cognitive assessment and consultant geriatricians encouraging the process. Quality improvement activities involved all hospital staff who had contact with the patient as they moved through the hospital from admission to discharge. The development of a quality loop which provides feedback to the staff regarding their interaction with the patient will improve the process of geriatric assessment.

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