

CHAPTER 7

QUALITY AND SATISFACTION ASSOCIATED WITH IMPLEMENTATION OF THE MACARTHUR MODEL

7.1 Background and aims of an ambulatory quality system

The Macarthur Ambulatory Care Service (MACS) commenced delivery of acute outreach multidisciplinary health care in 2000. The service provided a program that substituted for inpatient hospital stay as previously discussed. The service also supported discharge from hospital into the community, and assisted with the management of chronic and complex conditions. A system was developed to monitor the quality of community treatment of these patients since the introduction of the Macarthur Model in 2000.

A number of studies has been performed on inpatient settings and has shown that the number of major adverse events occurring in existing healthcare delivery is unacceptably high ¹²¹. The development of a “new” style of healthcare delivery necessitated the development of quality indicators in parallel with hospital inpatient systems. It was the hypothesis of this audit that individuals would suffer fewer complications of admission and greater satisfaction with a community-based service, which is the Macarthur model, without compromise of their medical outcome. It was unknown whether there were fewer adverse events associated with this type of care.

Satisfaction with hospital in the home or ambulatory care has been reported as better than with hospital care ¹²². The Australian Council for Healthcare Standards has published only two indicators, which have been tested in only one site in Melbourne ²³. The two indicators, which are (1) unplanned readmission to hospital, and (2) out-of-hours phone calls, were not considered adequate to assess quality of care. The author’s approach to development of this system was influenced by his previous experience as a clinician at Royal North Shore

Hospital (RNSH), which had developed an innovative quality assurance program called “QARNS”¹²³. This system utilized “flags” for adverse events retrieved from file reviews by a nurse. There was an established peer-review committee with rotating clinician membership which formulated questions related to quality of care. The questions were directed to the treating team for discussion, and their replies thus influenced future practice. This system could be described as a reactive or “PUSH” approach, and its success required a committed number of staff to operate the system.

It was the author’s intention to implement a proactive or “PULL” approach, which was sustainable within existing resources with an emphasis on voluntary reporting. This system was designed to link quality measurement to improvement, since this is often lacking in more rigid or pathway-driven approaches¹²⁴. The author was also aware that problems in patient care may have been more evident to practitioners outside the hospital system. The patient’s general practitioner is involved in referral and receipt of patients from within the acute-care setting. It was for this reason that a consumer representative and a local general practitioner were invited to be part of the multidisciplinary review team. The inclusion of these people has not been implemented in any other hospital-based service to the author’s knowledge.

The introduction of a new service provided an opportunity to develop a quality program, which was guided by the Clinicians’ Tool Kit¹²⁵. The existing MAP data system was further developed to include a “Quality Minimum Data Set”. This computer-based data recording was utilised as an approach to anonymous and simple reporting, which was familiar and acceptable to nursing and allied

health staff. It could also be entered at any time or the same time as entering other mandatory (MAP) reporting data.

The aim was to determine the extent and nature of any departure from the expected course of a patient's passage through the Macarthur Ambulatory Care Service (MACS). A departure from expected practice or outcome is called a "variance" which is in fact an adverse event. The concept of a variance review process was introduced rather than the term "adverse event". The term "adverse event" carries with it undesirable connotations of negligence with possible punitive sequelae.

7.2 Method of collection and review of quality data

Variance monitoring was introduced in 2001 as a continuous process, with data logged anonymously in the patient's current record on the organisation's networked computer (MAP) system. The data set reflected criteria developed through practice during 2000. It divided variances into process (or system) events and clinical events. These were collated with a recall of the hard-copy clinical records every month. As part of this review, numerical data were also held and tabulated.

A four-person primary review panel was convened early in the month to provide an initial case-note review of each event. The panel consisted of one member from the medical staff, one nurse, one allied health professional, and an independent health professional from outside of the service, usually from the hospital's inpatient Quality Support Unit. One of three options was chosen:

- 1) Immediate external review.
- 2) No further action.
- 3) Further MACS discussion.

Those issues that the primary review team felt required further discussion were presented in a de-identified format at the secondary review meeting.

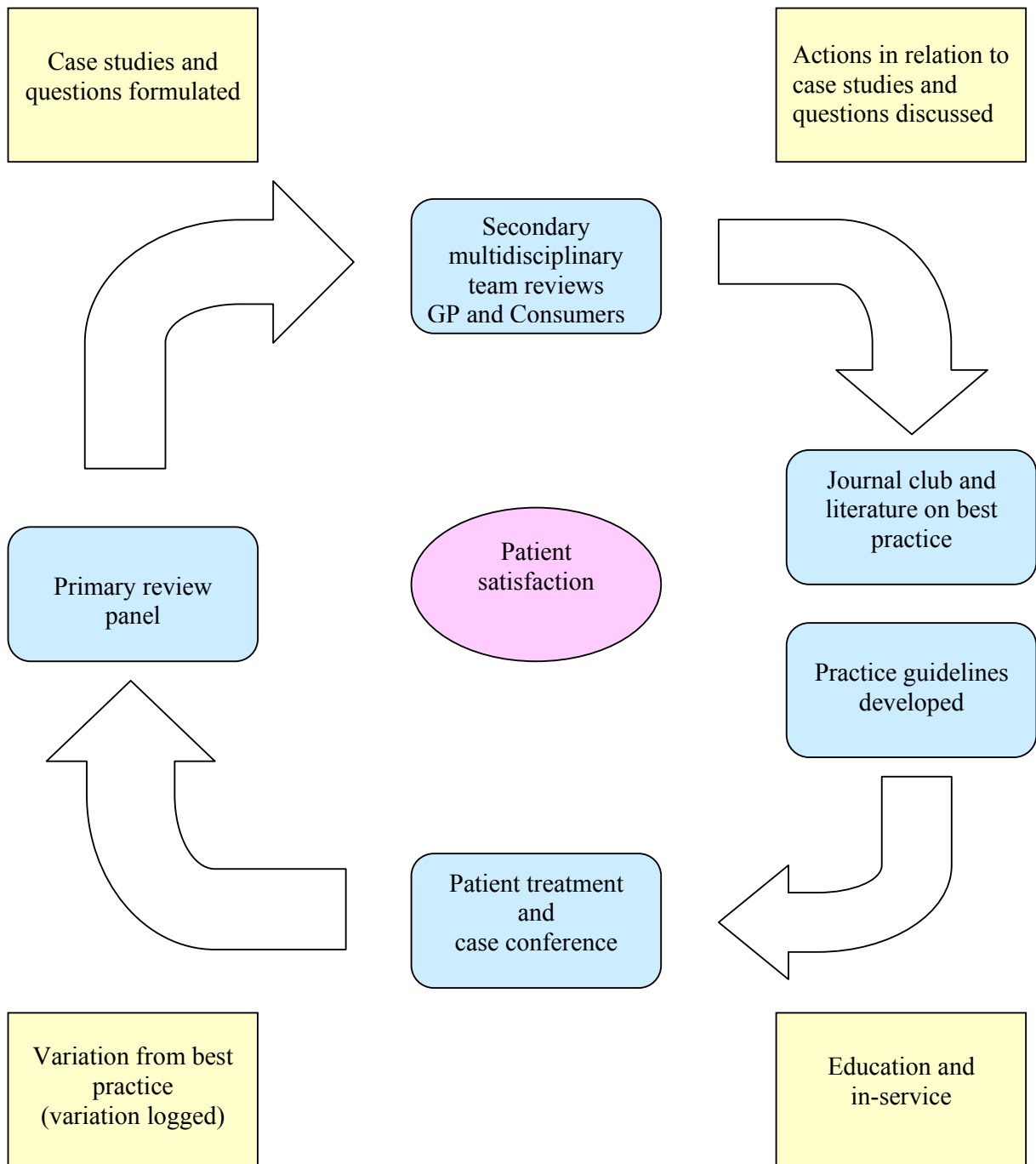
This secondary review panel utilised the entire MACS multidisciplinary outreach team with consumer participation and peer review from a local GP. This panel of 20 to 30 staff people also met monthly. The consumer representative was recruited through the Macarthur Consumer Council; the rotating GP position was elected by the Macarthur Division of General Practice. Staff cooperation with this activity was achieved by provision of a catered lunchtime event and regarded as a protected professional development session. A medical or nursing representative chaired the meeting and all concerns were discussed within a time limit of one hour. The agreed outcome was actioned by a named member of staff and reported back to the next meeting. The quality circle was completed by regular journal reviews, in-service tuition based upon highlighted educational needs, and local evidence-based guideline development and specific communication with other health professionals or their representative groups. At the centre of this circle, patient satisfaction was explored. The quality circle and relationships to quality data are represented in Figure 7.1.

The key points in the process are listed below:

- Development of core flagging criteria into a minimum data set.
- Entering of data electronically into the MAP system.

Figure 7.1

The multidisciplinary quality circle



- Obtaining clinical records prior to the next scheduled meeting.
- Promotion of active discussion in regard to presented issues in a multidisciplinary setting with an independent assessor - Primary Review.
- Documenting committee findings and actions.
- Presenting committee findings in de-identified form at an open forum, which thereby promotes team interaction and maintains team confidentiality - Secondary Review.
- Recording outcome of discussion and actions.
- Reviewing literature at journal club and developing evidence based Guidelines ¹²⁶.
- Training staff in best practice policy and procedure.

7.3 Results of quality and satisfaction audits

The results of variance data from 2003 are presented in Table 7.1, and results of the satisfaction survey are in the text. The variance data were divided into clinical and process issues, and related to the 1836 people (100%) treated by the acute outreach service (MACS) in 2003.

There were 85 clinical variances (4.6%), and also 85 process variances, making a total of 170, or 9.3% of the total patients treated. The most frequent clinical issues were “clinical deterioration” in 25 or 14.7% of the 170 variances. Medication errors were reported in 28 patients, with 11 by staff and 17 by patients. Ten patients were readmitted to inpatient care during treatment, which was 0.5% of all patients treated. The largest number of process variances was 20

reports for issues inherited from other agencies. A small number of reports (n=12) were for patients not attending for prescribed ambulatory treatment.

There were no recorded deaths while on the service in this calendar year.

Table 7.1 **Macarthur ambulatory quality variance data**
January to December 2003, total patients treated 1836

Variance Item	Number	% Of Admissions	% Of Variances
Clinical			
Clinical Deterioration	25	1.4%	14.7%
Medication Error – Patient	17	0.9%	10.0%
Medical Condition	15	0.8%	8.8%
Medication Error – Staff	11	0.6%	6.5%
Readmission For Related Condition	5	0.3%	2.9%
Allergic Reaction	4	0.2%	2.4%
Missed Diagnosis	2	0.1%	1.2%
No IV Access	1	0.1%	0.6%
Readmission For Other Condition	1	0.1%	0.6%
Died	0	0.0%	6.0%
Clinical Total	85	4.6%	50.0%
Process			
Other Agency/Service Variance	20	1.1%	11.8%
Non Attendance	12	0.7%	7.1%
Inappropriate Referral	9	0.5%	5.3%
Delay In Referral	9	0.5%	5.3%
Other Agencies Involved	7	0.4%	4.1%
Missing Data	6	0.3%	3.5%
After Hours Expected Contact	5	0.3%	2.9%
Delay In Review	4	0.2%	2.4%
Non Compliance	3	0.2%	1.8%
Patient Safety	4	0.2%	2.4%
Inability To Refer To Other Agencies	2	0.1%	1.2%
Staff Safety	2	0.1%	1.2%
Equipment Breakdown	1	0.1%	0.6%
Moved Out Of Area	0	0.0%	0.0%
Transferred	1	0.1%	0.6%
Process Total	85	4.6%	50.0%
Total All Variances	170	9.3%	100.0%

A comparison with hospital indicators was attempted by defining the number of bed days for acute inpatient care in Campbelltown Hospital for 2003 and for MACS. The number of medication errors by nursing staff was 116 per 52,961 acute adult bed days, or 0.22% error per patient bed day (22 errors per 100 patient bed days). There were 11 medication errors per 6,123 bed days in MACS or 0.18% error per acute adult patient bed day. The MACS system also recorded patient-initiated medication errors detected by staff. This occurred in 0.9% of patient separations. The awareness of patients' errors in administration is a useful indicator to effect change in patient behaviour through improved education, communication and medication pre-packaging¹²⁷. Patient self-medication is rarely checked in the acute care setting, and is thus unreliable for developing a comparative inpatient sample.

The primary review process yielded 31 clinical and 22 process variances, which were discussed by the secondary review team. An audit of the minutes and records of the secondary review variance meeting was performed. Thirty-one clinical variances were minuted, and of these 16 resulted in six identifiable quality improvements. These are listed below:

- 1) Discussion of six intravenous adverse drug reactions (ADR) did not change practice. However, a system of reporting all ADRs to the Commonwealth Government was initiated.
- 2) Two issues with peripherally inserted central catheter insertion were acknowledged as occurring due to a lack of knowledge by nursing staff of insertion technique and management. This resulted in renewed interest in a system of training and credentialing for this procedure.

- 3) Anticoagulation problems with warfarin and low-molecular-weight heparin were discussed in four patients. The outcome was a further review of literature at the journal club and review of existing anticoagulation guidelines (Appendix 2).
- 4) A patient continued taking inappropriate medication as a result of poor communication between the treating team and patient. Improvements in written and verbal communication have occurred.
- 5) One patient returned to driving a vehicle, which was contrary to Roads and Traffic Authority guidelines¹²⁸. All staff members were made aware of their responsibilities in educating and informing appropriate patients about this issue.
- 6) A patient was admitted to the MACS in the evening following a referral from the ED. The medical assessment next day resulted in inpatient admission. The problem was the result of poor communication of the issues and failure to follow the on-call physician's orders. A checklist and trial of a fax-back treatment plan from physician to ED was initiated.

A satisfaction survey was conducted between 6 January 2004 and 27 July 2004 (Table 7.2). The number of patients treated in that period was 828 with a return of 497 (60.0%) questionnaires. The results indicated a high level of patient satisfaction (98%) and support (93%) with MACS. A small proportion of patients would have rather have been treated in hospital (8%), and 3% would not use the service again.

Patient complaints were five in 2002 and zero in 2003 for MACS. In contrast, the acute inpatient sector received 203 complaint issues for 165 patient separations from a total of 17,001 separations in 2003. The rate of complaints for MACS (using 2002 figures) was 3 per 1000 separations which was significantly less than the inpatient rate of 12 per 1000 separations ($\chi^2=12.7, df 1, p < 0.001$).

Table 7.2 **Patient satisfaction survey:**
Returns (n=497) from 828 surveys distributed

Satisfaction With Service	98%
Were Able To Contact Staff	80%
Feel Supported	93%
Rather Be Treated At Home	92%
Rather Be Treated In Hospital	8%
Would Use The Service Again	97%
Would Not Use The Service Again	3%

7.4 Discussion and conclusions

There were some challenges to an “in-house” quality programme that this audit reflects. All serious, life-threatening and fatal adverse events were also reported to the hospital’s Acute Care Service’s Review Committee for analysis, in line with Department of Health guidelines. Fortunately, these events were few in the population of adults treated with mainly single system/organ illness. Reports were received and fed back to staff through the secondary variance meeting. The limitations are that self-reporting is widely regarded as underestimating the incidence of adverse events, though our non-punitive anonymous reporting system and the blame-free analysis assists in covering as many as possible.

The incorporation of a GP peer reviewer has been a valuable experience for the hospital-based outreach team, and is continuing to improve services towards true patient-centred care shared between hospital and general practice. The incorporation of a community representative has also been accepted by the team as a positive step towards the provision of better patient-centred healthcare.

The quality indicators presented in this chapter support the delivery of acute care in the home by a multidisciplinary team. The implementation of the Macarthur Model may provide a higher level of satisfaction and evidence of an acceptable level of adverse events when compared to traditional care for selected conditions.