A multidisciplinary Care Coordination Team improves emergency department discharge planning practice

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ABSTRACT

- In response to difficulties meeting the demand for hospital services ("access block") at Royal Melbourne Hospital, a major metropolitan tertiary referral hospital, an audit of patient needs revealed a shortage of aged-care beds and a need for post-acute care.
- A multidisciplinary Care Coordination Team (CCT) was formed at the end of July 2000 to ensure that emergency department patients were provided with services that would facilitate their return to, or maintenance in, the community.
- The target population included the frail elderly, those living alone, the homeless, frequent emergency department attenders, and those with complex medical or drug and alcohol problems. As part of routine emergency department care, a risk screen was implemented to determine referral to the CCT.
- In the first 12 months, the CCT saw 2532 patients (5.8% of all emergency department attendances). Nearly half of these patients were discharged home with referrals to community service providers.
- The rate of hospital admission from the emergency department fell significantly compared with the 12-month period before implementation of the CCT (13 420 patients, 30.9% [95% CI, 30.5–31.3] v 14 217 patients, 32.6% [95% CI, 32.2–33.0]; $P < 0.001$).
- Surveys of staff, patients and carers, as well as community service providers, showed a high level of satisfaction with the CCT.

MJA 2002; 177: 427–431

In response to mounting difficulties, from 1998 onwards, in meeting the demand for hospital services ("access block") and increasing ambulance bypass,[1] the Victorian Department of Human Services (DHS) allocated funds to major metropolitan hospitals in 2000 for a review of patient management in emergency departments.[2] In April 2000, a multidisciplinary steering committee was convened at the Royal Melbourne Hospital, a major metropolitan tertiary referral hospital, to review the post-acute-care needs of emergency department patients and to develop a model of care coordination. The committee comprised hospital staff and community service providers, including post-acute-care facilitation and hospital-in-the-home services.

As a first step, the committee audited the needs of a convenience sample of 76 emergency department patients. Fifty-one patients (67.1%) were deemed eligible for post-acute care. The 25 ineligible patients (32.9%) had needs related to long-term care. All but one of the 19 patients discharged from the emergency department had post-acute-care needs. The committee identified the primary contributors to "access block" to be a shortage of aged-care places and the need to admit elderly patients with minor injuries or illnesses, because of social issues or lack of home support.

A literature search demonstrated the value of risk identification and emergency department or hospital discharge planning, especially in the elderly (Box 1). The committee drew on this evidence, the audit results and focus group experience to activate a Care Coordination Team (CCT) to ensure that emergency department patients were provided with services to facilitate their return to, or maintenance in, the community, specifically by:

- preventing unnecessary and/or inappropriate hospital admissions;
- minimising repeat presentations of patients; and
- providing safe and effective discharge from the ED.

The Care Coordination Team service

The CCT commenced at the end of July 2000. The DHS allocated $200 000 for equipment and four CCT staff in the first year. The care coordinators comprised nursing and allied health personnel. Continuing Department of Health Services (DHS) funding is available as part of the DHS Emergency Demand Strategy.[2]

Patient population

The patient population targeted by the CCT included frail elderly people; people living alone; those who frequently attend the Royal Melbourne Hospital emergency department; those requiring assistance with activities of daily living

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1: Evidence that emergency department discharge planning can improve the identification and community support of patients at risk*

- Successful identification of patients at risk of readmission[3-11] (E2)
- Increased utilisation of Home Care Support Services[3-5] (E2)
- Utilisation of Home Care Support Services reduces the rate of functional decline[5,8,11] (E2)
- Reduction in repeat presentation of patients to hospital[3,8,12] (E2)

*Levels of evidence are based on the grading system of the National Health and Medical Research Council.[13]

2: Algorithm of Care Coordination Team referral and assessment process

3: Diagnoses and disposition of the 2532 patients seen during the first year of the Care Coordination Team

	Number (%)
Diagnosis (illness)	
Respiratory	443 (17.5%)
Cardiac	308 (12.2%)
Musculoskeletal	253 (10.0%)
Neurological	189 (7.5%)
Abdominal	216 (8.5%)
Miscellaneous infections	142 (5.6%)
Wounds	119 (4.7%)
Confusion and dementia	93 (3.7%)
Other medical	281 (11.1%)
Psychiatric	119 (4.7%)
Drug and alcohol	99 (3.9%)
Mixed medical and social	182 (7.2%)
Purely social	88 (3.5%)
Disposition	
Home	1254 (49.5%)
Admitted to Royal Melbourne Hospital	1132 (44.7%)
Admitted to another hospital	75 (3.0%)
St Vincent's short stay unit*	58 (2.3%)
Hospital in the home	13 (0.5%)

*Patients were admitted to St Vincent's Hospital short stay unit for up to 48 hours. St Vincent's is a major metropolitan hospital located within 5 km of Royal Melbourne Hospital.

or having complex medical problems; those not eligible for hospital in the home; those requiring complex discharge planning; the homeless; and those with drug and alcohol problems.

A validated risk screening tool (see Box 2) is employed by triage staff to identify patients at risk.[10] Care coordinators also receive referrals directly from other emergency department staff and attend handover rounds to identify suitable patients. Patients and families with previous contact with the CCT may self-refer, and community service providers also alert care coordinators to the impending arrival of suitable patients.

The care coordinators undertake a comprehensive discharge risk assessment of suitable patients. Priority is given firstly to patients for whom unnecessary or inappropriate admission could be prevented, and then patients awaiting admission who require complex discharge planning. The risk assessment involves documentation of expected discharge date and destination, existing services and supports, and includes prompts for referral to internal and external health professionals.

The patient assessment and management algorithm is shown in Box 2.

Resource base of the CCT

The CCT has established a resource base that includes 24-hour, seven-day access to home services through an emergency department post-acute-care facilitation unit client service coordinator. The services available include home care, personal care, physiotherapy and occupational therapy, transport and childcare. The CCT also implements early effective discharge to the homeless persons nursing program by using an after-hours referral mechanism. Almost half (46.8%) of all referrals are made to allied health professionals, the post-acute-care facilitation unit and the homeless persons program. In response to the increase in referrals, the homeless persons program now employs a nurse specifically for the Royal Melbourne Hospital. Finally, working relationships exist with other community service providers, including case managers, home nursing services, local government and aged-care assessment services, mental health liaison staff, and the Commonwealth Department of Veterans' Affairs. The CCT may also undertake home visits, includ-

ing occupational therapy home assessments.

Results of CCT service evaluation

The CCT service was assessed 12 months after its commencement. The assessment was mainly analysed descriptively. The Royal Melbourne Hospital Human Research Ethics Committee exempted the assessment from formal review as it was a quality assurance exercise.

Between August 2000 and July 2001, 43 405 patients presented to the emergency department. Box 3 gives the diagnoses and disposition of the 2532 patients (5.8%; 95% CI, 5.6–6.0) seen by the CCT. In total, 1199 referrals to community service providers were made (Box 4). Most (81.5%) referrals were made for the 1254 patients who were discharged home; 881 discharged patients were provided with a total of 977 referrals (some received multiple referrals). To optimise continuity of care, patients discharged home without a referral to a community service provider were telephoned within seven days.

A comparison of admissions to the emergency department in the 12 months before and after the CCT service is given in Box 5. Overall, only 53 patients (2.1%; 95% CI, 1.6–2.8) seen by the CCT had an unplanned re-presentation. To our knowledge, no patient died or suffered an adverse event after CCT review and discharge home.

An audit of medical histories in the four-month period (1 August – 24 November 2000) assessed medical staff intention to admit patients before care coordinator intervention. Of 673 histories audited, there were 31 (4.6%; 95% CI, 3.2–6.5) with documentation clearly stating an intention to admit the patient. However, after CCT involvement, these patients were discharged home with the support of community service providers.

4: Nature of the Care Coordination Team referrals

	Patient disposition				
Referral service	Home	Admitted	Transferred	SSU*	Total (%)
Allied health services	106	104	1	1	212 (17.7%)
Post-acute care facilitation unit	182	12	1	3	198 (16.5%)
Homeless persons program	135	12	3	1	151 (12.6%)
Royal District Nursing Service	105	7	5	—	117 (9.8%)
Community councils	83	6	2	—	91 (7.6%)
Aids and appliance services	44	4	1	—	49 (4.1%)
Mental health	37	4	3	—	44 (3.7%)
Community heath centres	41	1	—	1	43 (3.6%)
Drug and alcohol services	40	—	—	—	40 (3.3%)
Aged-care assessment service	23	12	1	—	36 (3.0%)
Crisis accommodation	30	1	—	—	31 (2.6%)
Carer support or residential respite	23	5	—	—	28 (2.3%)
Other community services†	128	16	12	3	159 (13.2%)
Total	977 (81.5%)	184 (15.4%)	29 (2.4%)	9 (0.8%)	1199 (100%)

*St Vincent's Hospital short stay unit, where patients were admitted for up to 48 hours. St Vincent's is a major metropolitan hospital located within 5 km of Royal Melbourne Hospital.
†Includes home assessment, inpatient specialist services, geriatric hospitals, community rehabilitation centre, Centrelink.

5: Comparison of emergency department (ED) admissions before and after the Care Coordination Team (CCT) service

	Number (%; 95% CI) emergency department admissions		
	12 months before CCT	12 months after CCT	χ^2, *P*
Patients admitted from ED	14 217 (32.6%; 32.2%–33.0%)	13 420 (30.9%; 30.5%–31.3%)	$\chi^2 = 27.7$ $P < 0.001$
Patients re-presenting to ED	3856 (8.8%; 8.6%–9.1%)	3744 (8.6%; 8.4%–8.9%)	$\chi^2 = 1.19$ $P = 0.28$

6: Summary of emergency department (ED) staff satisfaction with the Care Coordination Team (CCT) (*n*=68) (the first two categories are combined because no respondents nominated the first category)

Provides quality patient care	Never/sometimes	Usually	Always
	0 (0)	21 (30.9%)	47 (69.1%)
Has positive impact on patients' discharge	Never/sometimes	Usually	Always
	3 (4.4%)	48 (70.6%)	17 (25.0%)
Was easily accessible*	Never/sometimes	Usually	Always
	1 (1.5%)	28 (41.2%)	39 (57.4%)
Response time	Inadequate/adequate	Good	Very good
	2 (2.9%)	17 (25.0%)	49 (72.1%)
Impact on staff morale	Decreased/not affected	Increased	Increased greatly
	2 (2.9%)	42 (61.8%)	24 (35.3%)
Recommend CCT model to other EDs	Definitely not/maybe	Probably	Definitely
	0 (0)	5 (7.4%)	63 (92.7%)

*Method of contact with CCT: voice page (25); handover of patient at the change of shift (11); pager (2); direct (63). Respondents could nominate more than one method of contact.

Satisfaction surveys

Three satisfaction surveys were undertaken. Each was voluntary and employed a questionnaire with "tick box" ordinal or categorical response options, supplemented by written comments. All questionnaires were developed by the CCT and examined for readability and face validity by the CCT steering committee and emergency department research personnel.

Emergency department staff

An emergency department staff satisfaction survey was undertaken six months after the CCT commenced service. Anonymous questionnaires were mailed to all 113 medical, nursing and clerical emergency department staff. Sixty-eight questionnaires (60.2%) were returned and staff members reported that overall the CCT:

- usually or always provided quality patient care (68; 100%);
- had a positive impact on patient discharge (65; 95.6%);
- was easily accessible (67; 98.5%);
- increased or greatly increased staff morale (66; 97.2%); and
- could definitely be recommended to other emergency departments (63; 92.7%) (Box 6).

Patients and carers

A patient/carer satisfaction survey, undertaken between April and June 2001, assessed the service from the consumer perspective. Patients were invited to participate while in the emergency department, and consent was obtained before discharge. Criteria for inclusion in the survey were the need to have community services arranged, access to a telephone, a good command of English, and adequate cognitive capability. Forty-seven patients consented and were telephoned within one week of discharge. Responses were obtained from 40 patients (85.1%). The respondents rated the service as either "good" (four patients; 10.0%) or "very good" (36 patients; 90.0%). Other questions sought qualitative data. In summary, the patients/carers reported that the CCT:

- assisted in the provision of safe and effective discharge from the emergency department;
- provided a high quality service; and
- could be recommended.

Community service providers

Sixteen key community service providers, whose services are regularly accessed by the CCT, were surveyed by mail in August 2001. Most are listed in Box 4. All surveys (100%) were returned. The CCT was reported as:

- always or sometimes easily accessible (eight [50.0%] and three [18.8%] respondents, respectively; five respondents had not referred to the CCT);
- always or sometimes having a positive impact on patient outcomes (seven [43.8%] and five [31.3%] respondents, respectively; four failed to answer); and
- a model worth recommending to other emergency departments (14 respondents [87.5%]; two respondents failed to answer).

Overall, the response was positive, with many respondents requesting additional information about the team. Two key issues reported were an appreciation of an emergency department contact person and the social and clinical information received about patients discharged.

Little criticism of the service was evident from the surveys. However, suggestions were made for the inclusion of bilingual care coordinators, an expansion of the disciplines within the service, and extending its availability to 24 hours a day.

Discussion

Overall, the CCT achieved its aims. Significantly fewer patients required admission after the service commenced.

Many factors affect admission rates, including industrial action, bed availability, ambulance bypass, and improved access to hospital-in-the-home and homeless persons services. However, it is likely that the CCT prevented some unnecessary admissions by utilising community support. The results of the medical history audit and the low rate of repeat presentation of patients after CCT intervention support this conclusion.

The overall number of repeat presentations to the emergency department showed a downwards trend after the service commenced, consistent with the findings of others.[3,8,12] These numbers include both unplanned and planned repeat presentations (eg, delayed investigation or review). It is encouraging that the re-presentation rate of patients reviewed by the CCT was much lower than the overall re-presentation rate. This suggests that community support and follow-up was, in most cases, adequate. However, care is required in comparing these rates, as the re-presentation rates of CCT patients excluded planned re-presentations.

The findings indicate that discharge after CCT review was safe and effective. This is supported by the low re-presentation rate, the positive responses from the patient and carer satisfaction survey, and the lack of adverse events identified by community service providers and the care coordinators' telephone follow-up.

Variations in staffing levels as a result of resource allocation and annual leave have occasionally had an adverse effect on service provision. Time constraints have necessitated patient prioritisation when a large number of patients need timely management. Resource limitations of community services, including limited after-hours services, and inadequate places in aged-care facilities, rehabilitation units or geriatric evaluation and management units, have also restricted the service. Other services have variable waiting lists (eg, council and home nursing services, and crisis accommodation). Finally, eligibility criteria have limited patient access (eg, geographical location, age, diagnosis, and availability of carers).

Conclusion

After one year of service, the CCT has successfully integrated into the emergency department, and there is evidence of a high degree of staff satisfaction with the team, improved

discharge planning practices, and the establishment of referral systems, links and relationships with internal and external service providers. We recommend this model, and the extension of community support services, to assist in the disposition of patients after acute care in emergency departments.

Competing interests

None identified.

Acknowledgements

The authors wish to acknowledge Miss Elizabeth Virtue, Nurse Manager Emergency Services, and Professor Peter Cameron, Director of Emergency Medicine, for their assistance and support in establishment of this discharge planning initiative. We also acknowledge the valuable contribution of both Mrs Nicole Amsing from the Post-Acute Care Facilitation Unit and Ms Katherine Hirst who was an original team member.

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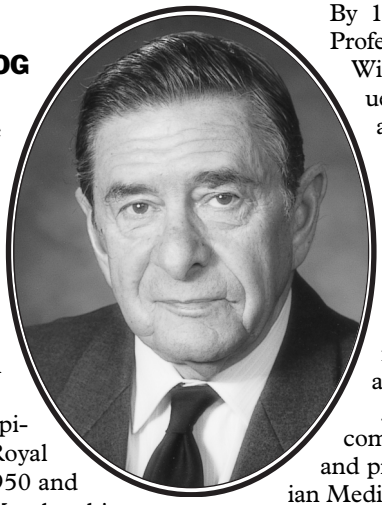
(Received 7 Mar, accepted 12 Jul 2002) ❑

OBITUARY

Joseph Correy

AM MB BS FRCOG FAGO FRACS FRACOG



JOE CORREY, an outstanding contributor to the field of obstetrics and gynaecology in Tasmania, died on 18 April 2002 of severe Parkinson's disease.

Joe was born in Manilla, New South Wales, on 17 June 1925, and moved to Sydney in 1930. Although his family was not well off, he won scholarships that enabled him to study medicine at the University of Sydney, from which he graduated in 1947.

After completing his residency at Sydney Hospital, he began training in obstetrics at the Royal Hobart Hospital. He married Lucy Denne in 1950 and went to Oxford, UK, in 1951. He obtained his Membership of the Royal College of Obstetricians and Gynaecologists in 1952 and returned home in the following year.

With his great personality, energy and ability, Joe built up a very successful private practice in Hobart over the next 15 years. In 1966, he received a William Morton Lemon scholarship to study ovulation induction in Melbourne, and returned to establish the Gynaecological Endocrinology and Infertility Clinics in Hobart and Launceston later that year.

In 1969, accepting an appointment as Director of Obstetrics and Gynaecology at the University of Tasmania's medical school, Joe began a remarkable transition from private practitioner to full-time academic, involving research work, training to run a university department, study and teaching.

By 1977 he had been promoted to the position of Professor, which he held until his retirement in 1990. With boundless energy and enthusiasm, he continued to take on new challenges throughout his academic career. In 1972, under a Brown Craig Travelling Fellowship, he studied ultrasound in the United Kingdom and returned to set up and run the first ultrasound service for pregnant women in Tasmania. In 1973–1974, he trained to acquire proficiency in pelvic cancer treatment. In 1981, he organised the IVF Clinic in Hobart, which he ran successfully for many years. He also initiated the collection of statistics for all public and private obstetric procedures in Tasmania.

Joe was an active member of many medical committees, including (at various times) secretary and president of the Tasmanian branch of the Australian Medical Association, president of the Royal Australian College of Obstetricians and Gynaecologists, an examiner with the RACOG and the Royal College of Obstetricians and Gynaecologists, and president of the Tasmanian Medical Council and the Australian Medical Council.

Joe's enthusiasm for life encompassed car trials, great parties, trips with his travellers' group, bridge and lawn bowls. Integrity, honesty and wit were inherent in his character.

He was made a Member of the Order of Australia in 1986 for services to medicine. He also became an Honorary Fellow of the Royal Australasian College of Surgeons in 1975 and received an Advance Australia Award in 1994.

Joe is survived by his second wife, Pam, and his three children and their families.

Gerard Gartlan