

Case management at Warringal Private Hospital: Challenges of development, implementation and evaluation

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Abstract

Case management has the potential to improve the quality of care for patients, streamline efficiencies within organisations, and ultimately lower health care expenditure. This article explores why Warringal Private Hospital embraced the concept and how the chosen model of case management was developed. It describes the implementation and evaluation of the model and how it was received, accepted, and applied by the various stakeholders. The cardiac and orthopaedic units will be cited as case studies in order to emphasise some of the challenges encountered in this process as well as the successful outcomes. It should be noted, however, that each unit within the hospital is unique and, although the principles of case management have been applied throughout the hospital, the development, implementation and evaluation has been specific to each unit.

Background

Government, private health insurance and community agencies, hospitals, and other organisations in the health care arena continue to grapple with how to improve the quality of patient care with limited resources (Applebaum & Austin 1990; Challis 1990; Davies 1990; Palmer & Short 1994; Fine and Thomson 1995). During the 1980s and 1990s the Australian Government launched

strategic reforms and initiatives to acknowledge these pressures, and various care delivery models were reviewed (Palmer & Short 1994). One such care delivery model, known as case management, began to make an appearance in Australia in the 1980s as a viable option for addressing these pressures (Applebaum & Austin 1990; Challis 1990; Davies 1999; Fine & Thomson 1995).

In countries such as the United States and the United Kingdom, case management had previously been developed and implemented in response to similar dilemmas. Case management seems to be effective overseas because its underlying principles include the delivery of coordinated care which is patient-focused, ensures improvement in quality cost-effective care, promotes collaboration among patients, carers and various groups that impact on care, and evaluates its impact on patient care using outcome-based research (Applebaum & Austin 1990; Challis 1990; Davies 1990; Rheaume et al. 1994; Tahan & Cesta 1994; Cohen & Cesta 1997; Zander 1988, 1990). However, the case management approach needed to be tailored to the Australian environment. The model's application is dependent on the environment in which it is developed and implemented, and with different funding structures, smaller population, and unique medical practice, case management needed to be modified to meet Australian needs.

Case management models had been developed and implemented within the Australian community health sector in the 1980s, but they had not been applied in the acute care setting (Department of Health, Housing, Local Government and Community Services 1994; Fine & Thomson 1995). Public and private hospitals were being challenged with how to provide quality, cost-effective care. In 1993 Warringal Private Hospital, an acute medical/surgical facility owned and operated by Health Care of Australia, was one of the first hospitals which embraced case management to assist in achieving its organisational goals. In addition, the hospital's care model was to be consistent with the continuum care principles of the forthcoming EQuIP (Evaluation and Quality Improvement Program) accreditation (Australian Council on Healthcare Standards 1996).

Case management has multiple meanings and interpretations, depending on the country, context, goals of particular organisations, and with whom you are speaking. From the United States, Applebaum and Austin (1990, p 5) describe community-based case management 'as an intervention using a human service professional to arrange and monitor an optimum package of long-term care services'. Zander (1988, p 23), also from the United States, views case management in the acute care setting 'as a model and set of technologies for the strategic management of cost and quality outcomes by the clinicians who give the care throughout an entire episode of illness'.

The Commonwealth Department of Human Services and Health (1995a; 1995b) describes case management as an approach which facilitates assessment and service provision to meet the patient's treatment and support needs, and ensures continuity of care throughout the coordination of service delivery across time and setting. These explanations of case management have similar principles yet are tailored to particular settings.

A case management definition that Warringal Private Hospital has embraced is:

Case management is a collaborative process which assesses, plans, implements, coordinates, monitors and evaluates the options and services required to meet an individual's health needs using communications and available resources to promote quality, cost-effective outcomes (Case Management Society of Australia 1997).

There has been debate about whether case management is an effective method of coordinating and providing care. Lindstrom, Laird and Soscia (1995, p 133) support case management by saying:

The need to control costs must be balanced with consumer demands for high quality in their health care. An integrated approach that uses a multidisciplinary team, a case manager, and a critical pathway to improve quality of patient care offers one method by which both goals may be achieved.

Warringal Private Hospital recognises these issues and has demonstrated that a case management approach can potentially attain positive outcomes for all stakeholders, including the patient, the staff, the hospital, the funding agencies and the wider health and social system.

Origins of case management at Warringal Private Hospital

Case management began as an idea of a few individuals and has since grown and changed the mindset of the entire staff at Warringal Private Hospital. Initial interest in case management was created by a few medical staff members who had a research focus and had worked in the United States. In 1994 the hospital received a Best Practice in the Health Sector grant from the Commonwealth Department of Health and Family Services. This initial grant enabled senior nursing staff to review firsthand developments in the United States and make comparisons with Australia.

The consistent message throughout the United States tour was that data collection, analysis and application was the viable link between successful programs and worthwhile outcomes. The presence of 'gut-feelings', personal

opinions and past experiences could no longer be used to establish the components needed to build the future for case management in the Australian setting.

The United States site visit generated valuable information for nurse case managers in terms of identifying the critical relationship between data and decision-making. Their cognitive approach has been forced to move from a traditional position of being directed by others to one of self-direction and re-engineering the future. Intense supervision, education and direction were needed in the earlier stages of the development, implementation and evaluation. Case management was at an infancy stage in Australian acute care hospitals and was recognised as being more of a theoretical ideal than a reality. No one, at the time, was formally educating hospital staff on how to develop and implement case management. It was truly evolutionary.

Therefore, executive management support was paramount. They provided complete support and flexibility in the nurse case manager's role. The management also encouraged nurse case managers to seek advice and input from the multidisciplinary team, thus reinforcing the collaborative nature of the case management model. This required confidence in their ability to initiate change, which was a significant challenge for nurse case managers.

The introduction of case management has exposed the hospital to organisational risk factors, the most outstanding being both the culture and the way health care is practised. Its impact on these areas has been significant because the hospital staff have had to reorder and adjust their approach to patient management. In addition, they have had to reconsider the current economic and social environment and make decisions about patient care which will attain desired goals. Thus case management has provided a restructured and altered approach to all processes of patient care.

The case management model at Warringal Private Hospital

The developed case management model is based on a multidisciplinary team approach involving doctors, nurses, allied health professionals and, most importantly, the patient and their family. It is an approach whereby clinical data as well as patient input drive the decision-making. The case management model has many elements. The major elements of the model include pre-admission assessment, discharge planning, inpatient management, discharge coordination and outcome management. A designated nurse case manager facilitates this process with the multidisciplinary team.

The role of the nurse case manager

The nurse case managers have a global picture of the care process and begin discharge planning from the pre-admission stage. This is one of the critical differences from other hospital management practices. Nurse case managers have been appointed to work with the multidisciplinary team and, with their clinical expertise and experience as well as evidence-based data, they are able to anticipate the patient's expected length of stay and the overall care process.

Pre-admission assessment

Pre-admission allows for exchange of information, the planning of individual care, potential problem identification and initial discharge planning. The nurse case manager conducts a physical and psycho-social assessment and ensures realistic expectations. The nurse case manager conduct the pre-admission assessments at the hospital patient's home.

Discharge planning

Discharge planning begins during the pre-admission assessment. The nurse case manager facilitates the process of identifying individual needs for post-discharge. This avoids unexpected delays and inappropriate use of resources. A discharge plan will be finalised before admission and agreed upon with the patient and family. Post-discharge accountability is integral to the model.

Inpatient management

'Critical pathways' and 'clinical outcome plans' are utilised during the inpatient stay. These are outcome-based documents used by the multidisciplinary team facilitating appropriate, timely and sequential interventions. Nurse case managers intervene in patient management according to documented comorbidities and variances.

Discharge coordination

The nurse case managers and the multidisciplinary team review the discharge plan during the inpatient stay. They coordinate discharge, ensuring appropriateness of timing and support services. The discharge planning and/or coordination may involve home care. This home care service was initiated by the hospital in 1994 and was developed to support the continuum of care. The nurse case managers have embraced the notion that 'care' does not end when the patient leaves the confines of the hospital. They follow the patient's progress post-discharge and interact with general practitioners, and community and home care

providers to ensure a smooth transition when the patient leaves the hospital, thereby embracing continuity of care principles.

Outcome management

Ongoing evaluation of the impact of case management on providing quality, cost-effective care is vital. It is necessary to collect, analyse and monitor patient outcomes in order to improve processes and hence validate the success of case management. Outcomes are divided into two categories: acute and longitudinal. Acute outcomes are those established on the critical pathway. Deviations from these expected outcomes are monitored by 'variance analysis', which is utilised to measure and improve the patient care process. Longitudinal outcomes are those tracked over an extended, appropriate period to achieve an understanding of the longer term effect of acute care interventions. Both types of outcomes can be examined on an individual or population level (Warringal Private Hospital 1996).

Implementing the elements which constitute Warringal Private Hospital's case management model has resulted in practical advantages for care delivery including:

- a patient admitted with all pre-operative paperwork and interventions complete
- reduced post-admission cancellations and delayed surgery
- documentation which ensures clear communication of care interventions required, thus empowering staff to be proactive
- reduced nursing and allied health staff documentation and patient admission time
- informed patients and carers who are able to take an active part in their recovery.

The model has had unique applications, depending on the particular units within the hospital. The following case studies of the orthopaedic and cardiac units present the development, implementation and evaluation of case management.

Case study 1: Orthopaedic case management

Case management was first initiated at Warringal Private Hospital in March 1993 and formalised with the appointment of one of the authors, Melissa McDonald, as the 'orthopaedic case manager' in May 1993. At the time, little was known about the concept of case management, resources to learn by were

scarce, and the rhetoric of United States managed care was feared by all. Many people did not feel that change was necessary and were reluctant to embrace any initiatives. However, change was inevitable because the health care system was under financial pressure and quality concerns were numerous.

The case management model developed at the hospital has provided a strategy to deal with subsequent changes in traditional methods of care delivery, increasing health care consumer expectations, and significant changes to private hospital reimbursement from health funds. Five years from case management's genesis in the orthopaedic unit, the development, implementation and evaluation is reviewed.

The orthopaedic unit at Warringal Private Hospital has always been busy, and in 1993 accounted for 25% of the hospital's throughput. Procedures performed included sports injuries such as arthroscopy and reconstructive surgery, trauma such as fractures, spinal surgery and joint replacements. There were numerous surgeons who had been at the hospital for years, and another who had recently commenced operating and was performing complex joint replacement procedures.

Initially one of the challenges was to introduce change in an environment that was steeped in traditional task-oriented practice. The process of care delivery and identification of expected outcomes had previously been given little consideration. In addition, relationships between the disciplines, although friendly and professional, were not collaborative. There was minimal formal review of individual patient progress, and no aggregate review of population outcomes. Furthermore, the notion of a partnership with patients was foreign and care was 'done to' patients rather than 'done with' patients. Patients were admitted for an operation, underwent surgery, and were discharged home. The global view of the patient was yet to be discovered.

In establishing the program, it was important to develop and implement all of the elements comprising the model (that is, pre-admission, discharge planning, etc.). It was easy to consider that developing a critical pathway was going to be the quickest way to bring about change. However, this was not the case, with pre-admission assessment becoming a focal point in determining and affecting patient outcomes. Identifying individual patient needs was imperative to determine their appropriate outcomes. Focusing on pre-admission assessment also reassured the surgeons that our agenda was the delivery of appropriate care and the identification of individualised outcomes for their patients, not seeking to dictate their practice.

Developing the pre-admission process, a seemingly simple assignment, highlighted just how deprived patients and clinical staff were of relevant

information. Understanding the current admission process was imperative in determining what patients experienced before their hospital admission.

Before the establishment of this service, the only contact the patients had with the hospital was with the admissions clerk on the day before their actual admission. The information gathered dealt with administrative, not clinical, issues. On more than one occasion, a patient was inappropriately admitted and surgery was subsequently cancelled.

Identification of the pre-admission process assisted in determining the best method of establishing contact with incoming patients, as well as providing them with access to the information they required regarding their operation, hospital stay, financial issues and expected outcomes. The general practitioner was identified not only as the referral source, but also as an important contributor to the identification of co-morbidities and other relevant issues regarding the patient's condition. Thus, where appropriate, the general practitioner's advice was sought in preparing the patient for admission.

Obtaining the interest and support of the consultant secretaries was imperative in establishing early contact with incoming patients. The secretaries have close professional relationships with the surgeon and, therefore, fostering a relationship with the doctors' secretaries provided a line of contact with patients prior to admission. The benefit to the secretaries was having the case manager as a reference person to help field patient enquiries, most of which were clinical. Once the collaborative relationship was established, the secretaries assisted in the process (which remains in place today) and provided the patients with a letter inviting them to contact the (orthopaedic) case manager. Weekly meetings continue with the secretaries to ensure that all incoming patients have met, or at least spoken to, the case manager.

Whilst developing our pre-admission clinic, work was also under way on establishing our first critical pathway. Given the work that is involved in development, it would have been impossible and, indeed, inappropriate to introduce more than one critical pathway at a time. We decided to work with one surgeon and target a population group with fairly extensive needs: patients undergoing hip replacement surgery.

Preparation of this pathway began, not with a gut-feeling, but with a retrospective audit of patient histories. Initially, 20 histories were audited on a day-to-day basis to identify interventions and time frames, a huge task given that there were in excess of 200 individual days to manually collect and collate. Inconsistencies in treatment were evident. Routine post-operative pathology was attended to in excess of four times on 50% of the population audited, for no documented reason, and there was significant variation in the day patients were mobilising.

Once the data were formatted, regular meetings were scheduled with the multidisciplinary team, including:

- director of nursing (initially)
- surgeon
- case manager
- nurse unit manager
- physiotherapist
- pathology manager
- occupational therapist
- health information officer.

Audit findings were reviewed and discussed. The team worked well together and identified preferred practice, whilst it was agreed that the first pathway would be drafted as a trial document. Once the pathway was drafted and distributed, the group reconvened and discussed the initial draft, which resulted in a rewrite. Following team review, the pathway was ready for implementation. This process, although some may consider it tedious, is paramount in its use of accurate data and multidisciplinary collaboration. Although this process was commenced in April 1993, the first pathway was not trialled until August. This highlights the necessity of thorough preparation to ensure successful implementation.

Concurrent with the development of the first pathway was extensive staff education in the method of documentation, which was moving from documenting task completion to documenting by deviation from the clinical pathway (variance). During this phase the case manager facilitated this education but was also in the process of learning. It was necessary to develop new paperwork, with no existing format to use as a guide. Fortunately, the health information officer provided advice on the legal requirements and functionality of the new format. In order to access all staff, including those on night duty, the case manager was often arriving and leaving at odd hours of the day and night. The staff generally accepted the changes in documentation, and an early staff satisfaction survey identified the focus on outcomes and the reduction in documentation time as major benefits. Non-nursing staff also had to be introduced to the concept of documenting by variance, including the surgeons, physiotherapists, occupational therapists, and dietician. Overall, the understanding and acceptance of the new approach was without significant difficulty.

Following the use of a critical pathway (one doctor, one procedure) for the first 10 patients, a review of the deviations from the pathways, known as variance

analysis, was undertaken. Once again, this necessitated manual review of patient histories, and collation of the variances from the pathway. A finding of this variance analysis was that a significant number of patients had serious ooze from wound sites, delaying their discharge from hospital. Following these results, based on data, the surgeon reviewed his method of skin closure and subsequently changed his technique. This did not appear as a significant variance on the following analysis.

Having successfully introduced the concept, and the first pathway, followed by variance analysis, the multidisciplinary team met to discuss other procedures. Once we became comfortable with the process, other doctors were approached. We now have 89% of all of our orthopaedic procedures on a critical pathway, all having been developed specific to a population and doctor. The remaining 11% of procedures are managed using a clinical outcome plan, an outcome-based multidisciplinary care plan. Clinical outcome plans are written individually for patients not appropriate for management on a critical pathway.

Since 1993 the program has expanded to include the care and outcomes of all orthopaedic patients, regardless of the extent of their surgery. The concept of variance and the use of variance analysis has always been pivotal to the clinical care we provide. The hospital has recently been involved in the development of a software program, known as Pathfinder, which allows us to extract multivariate analysis of length of stay, variance and co-morbidities, thus removing the laborious and retrospective nature of manual analysis.

There have been significant changes in the environment in which private health care is delivered since the introduction of case management at Warringal Private Hospital. Length of stay continues to be reduced. The average length of stay for hip replacements before the introduction of case management in 1994 was 14.9 days; it is now 10.16 days. Changes in reimbursement methods from health funds has altered hospitals' source of revenue and significantly influenced the choice of hospitals which patients can access.

In 1995 the hospital entered a 'case payment trial' with two of the major health funding agencies. For selected procedures, the hospital receives a flat rate, as opposed to payment on a per diem basis. The imperative has been to provide care as required within the allocated time frame and budget. The trial proved successful, with length of stay well within the payment period. This trial was extended to include the financial responsibility for inpatient rehabilitation use, resulting in more appropriate use of sub-acute care facilities and length of stay. Attention to inpatient rehabilitation has resulted in an overall reduction in inpatient rehabilitation from 33% in 1995 down to 15.7% in 1997, and has promoted the development of outpatient, community, and home-based services.

Over the last four years, orthopaedic case management has become an integral component of the orthopaedic services offered at Warringal Private Hospital, and has been significant in affecting change in clinical and funding practices. The experience of the orthopaedic unit highlights that change can be met with a collaborative and team approach.

Case study 2: Cardiac case management

The development, implementation and evaluation of the cardiac case management program mirrors the introduction and expansion of a new service at Warringal Private Hospital. This case study will discuss the challenges encountered in a rapidly changing environment.

In 1992 the hospital management identified a community need and demand for a private cardiac care provider to offer an alternative to the strained resources and waiting lists of the nearby public facility. A considerable financial and technological commitment was necessary for the introduction of cardiac surgery, including the conversion of the high dependency unit to an intensive care unit in late 1992.

Since 1993 cardiac services at Warringal Private Hospital have expanded and have altered the configuration, culture and operation of the facility. The significance of this expansion is evident from the increase in the cardiac contribution to the hospital revenue from 7.8% in 1993–94 to 29.3% in 1997–98. During this time of change and the breaking of new ground at the hospital, there were equally rapid changes taking place in the provision of health care nationally and internationally. Health policy and practices were being forced to accommodate increasing consumer and health fund demands for evidence-based care. It was proving a challenge to provide and monitor optimum quality outcomes in an environment of rising health care costs and declining resources. There were also changes in the way private hospitals would be reimbursed by health funds.

These changes were nowhere more evident than in areas of high technology innovation and demand such as cardiology and cardiac surgery. Warringal Private Hospital's executive management response to these forces was to re-engineer the hospital's care delivery processes to ensure the continuation of its traditional quality care while accommodating such environmental changes.

In 1993 cardiac patients underwent angiography at the nearby public hospital and were then admitted to Warringal Private Hospital for surgery. The average length of hospital stay for this procedure in 1993 was 12.4 days. Care continued to be delivered by the completion of task, and was reactive depending on patient

progress. Visiting medical officers directed care on a day-to-day basis. There was little coordination of clinical interventions and allied health services, and there was no contact with patients before admission for what was to most patients and their families a terrifying prospect. Patients needing to be monitored remained in the intensive care unit for four post-operative days and then were transferred to the general surgical ward. Discharge was often delayed inappropriately because it was organised once the consultant decided the patient had progressed to a certain level.

Before the initiation of case management, Warringal Private Hospital offered a quality service, though care began and ended at the hospital doors, with patients, family and staff uncertain as to the course of the acute episode. The influx of new staff to deal with the establishment of the service also meant different 'right' ways of doing things and documentation imported from their previous place of employment. While all these had merit and were well intended, they did not necessarily fit with the hospital's culture and processes, nor with such initiatives as outcome-based practices.

In late 1994 another of the authors, Judith Wenborn, was appointed as the case manager for the intensive care unit and cardiac surgery and this extended to all cardiac areas in 1995. The initial challenge was to learn and develop an understanding of the principles of case management. A further challenge was recognising and understanding the need for change, and this was complicated by the fact that the newly established unit did not have a proven record of cardiac care or longstanding professional relationships to initiate change. There was no concept of a team and the word 'outcome' was not in the vocabulary. Whatever model of care was developed, there needed to be obvious advantages for each of the team members involved in cardiac care, including the surgeon, cardiologist, intensive care and ward nursing staff, physiotherapist, dietician, pathologist, radiologist, hospital executive and, most importantly, the patient and family.

Cardiac care is, to a large extent, predictable and lends itself to a model of care that is definable and routine. The cardiac unit required a model of care that suited both high turnover of short stay procedures (that is, angiography) as well as complex surgery, with its potential for costly and undesirable outcomes. It therefore needed to minimise documentation time and maximise patient/nurse contact time and provide clear communication of necessary interventions and the appropriate time frames. Closely monitoring the outcomes of this new service to ensure its growth and success was also deemed necessary. Although case management had been introduced and accepted in the orthopaedic unit at Warringal Private Hospital in 1993, little was understood of it elsewhere in the hospital. However, it appeared to be an attractive model for the cardiac unit.

Planning sessions were held with hospital management to align the strategic plan of the case management program with the strategic plan of the organisation. Our 'vision' was to be a leading provider of quality cardiac services, be resource-efficient, and identify and ensure optimum patient outcomes. The challenge was translating the ideology into action!

In addition, the model of care needed to adapt successfully to the external changes in health provision. A new funding initiative, case payment, was being trialled and case management was soon to have a direct financial impact on the hospital. Thus the stages of implementation were:

- collect data to identify where to focus
- identify team
- identify optimum outcomes
- develop a program that the existing hospital systems could support
- format documentation using outcome principles
- discuss relevant issues
- evaluate and monitor constantly.

Data analysis of the intensive care and cardiac populations formed the basis of an understanding of the core business. Flow charting of existing care practice highlighted clinical processes and inconsistencies, and assisted in identifying the multidisciplinary team. This required retrospective history analysis and a relationship between the case manager and the Health Information Service. This is a vital and essential link in the establishment and monitoring of a model of care based on data analysis.

Initially, the focus was on cardiac surgery patients: a high-risk, high-cost group of patients. Once the current system was defined by data, the next step was to identify the optimum outcomes for cardiac surgery patients. This process was facilitated by research, doctor practice, nursing and allied staff experience, as well as feedback from previous patients.

However, identifying the team members and the optimal outcomes was only the beginning. It was imperative that the existing processes of the facility could be adapted to support the case management model. This meant questioning the current booking, admission, discharge and billing processes. Thus relationships with hospital administration staff and consultants and their secretaries became another imperative.

The support of the consultant was paramount, and nothing could be achieved without it. The model was presented and agreed to by the various stakeholders

through meetings and education sessions, with the focus of change being the optimum quality of outcomes. The language of case management - continuum, outcomes, variance and case payment – began to become part of the hospital vocabulary. With the agreement of one consultant, pre-admission contact letters, a patient information booklet, a critical pathway, discharge planning/community resource information and post-discharge contact documents were drafted.

However, excitement at forthcoming change did not mean understanding, confidence to act or a sense of ownership. For example, the change from traditional intensive care documentation to documentation only by 'variance' required adjustment – from a page of progress notes at the end of each shift to a signature! It was the understanding of outcomes and variance which required and continues to require constant reinforcement. As the advantages to patients and staff became evident and confidence in the program grew, so did the demands for further critical pathways and a standard form of documentation. Two further consultants were involved for cardiac surgery and, as cardiology services expanded, cardiac case management also expanded.

It was tempting to assume the implementation was complete once the first critical pathway was introduced and pre-admission was a working part of the process. However, the essential element of the program is variance analysis and management, as continuous evaluation and monitoring of outcomes underpin all other principles. Manual retrospective patient history review was the only method available at that time.

It highlighted clinical interventions, such as arterial blood gas sampling in the intensive care unit and the ceasing of intravenous heparin post-angioplasty, which could be standardised to improve care and resource use.

The reporting of significant variances such as post-operative nausea and vomiting, fluid retention and constipation, and wound ooze resulted in collaboration and the altering of clinical practices, with subsequent notable improvement in patient outcomes. It also contributed to a reduction in length of hospital stay for cardiac surgery from 12.4 days in 1993 to 8.8 days in 1998. The importance of this process and the need for continual and immediate variance analysis necessitated the development of a computer program, known as Pathfinder, to accelerate the process.

The evaluation of the cardiac model is continuous and occurs through:

- customer satisfaction surveys including patients, nursing and consultant medical staff

- monitoring of performance indicators (such as cancelled or delayed surgery post-admission)
- data analysis such as variance analysis, population studies, length of stay, inpatient rehabilitation transfers, Australian Council on Healthcare Standards clinical indicators and longitudinal outcomes study of 250 cardiac surgery patients for a 12-month period.

This model has also supported the transition from a per diem basis of health fund reimbursement to case payment funding, now the norm in public and private health. As the case management model is a continuum of care model with an emphasis on process and longitudinal outcome monitoring, care and length of stay supported by pre-admission assessment and critical pathways, this change in reimbursement has had little impact on care delivery at Warringal Private Hospital.

Since these beginnings in 1994 the cardiac case management program has developed to become an integral part of the care delivery process for all cardiac patients. The team for cardiac patients is a cohesive and vital group. Continuous service improvement is a function of all team members. This is evidenced by the fact that consultants and critical care nursing staff are actively involved in the drafting of critical pathways. Currently, critical pathways are in place for 96% of doctor-specific cardiology procedures, and the care of the remaining 4% is coordinated by clinical outcome plans.

This has resulted in increasing pressure to continually monitor process outcomes through timely variance analysis. It has become obvious to all team members that this is the way to actively improve care and achieve desired changes in outcomes. With advances in technology continuing to alter cardiac treatment and care (such as day procedures) and increases in patient numbers, case management offers a system of care delivery which ensures the continuation of quality patient outcomes in a changing environment.

Conclusion

The case studies of the orthopaedic and cardiac units have demonstrated that the successful introduction of a case management model depends upon development, implementation and evaluation. Warringal Private Hospital's experience in the acute care setting discloses pertinent issues other organisations may wish to consider, although the principles of case management need to be aligned with their own particular goals and desired outcomes.

A case management program cannot eliminate all of the current problems of the health care system, but it can provide an opportunity for improvement in clinical care, patient satisfaction and resource utilisation. Case management is unique in health care because it is leadership-driven, is supported by data, encourages a collaborative team approach, and requires knowledge of process development and benchmarking. It is the combination of these factors that will continue to sustain the program and will provide avenues to further refine and expand its impact on the health care system.

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