The Antenatal Ward Care Delivery Map : A Team Model Approach

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Abstract

We begin by defining the concept of a 'CareMap', before briefly examining the context in which CareMaps emerged, as well as both their potential applications and the benefits arising from their implementation in health care services. We identify and discuss the history of, and critical aspects involved in, the development of the Antenatal Ward Care Delivery Map for the Mater Mothers' Hospital, Brisbane. We will address the multiple applications of, and specific benefits arising from, the formulation and implementation of the Antenatal Ward Care Delivery Map. Additionally, the relationship between the Care Delivery Map and other projects aimed at enhancing and maintaining high quality service delivery for patients across the continuum of care, will be explored. We examine the benefits of utilising the Care Delivery Map in professional education for clinical staff, as well as for health care consumers and their families. In conclusion, future projects enabled through the development of the Care Delivery Map are identified, as well as areas requiring further research.

Introduction

A growing literature exists pertaining to the development, application and benefits of CareMaps, and how this concept is defined (Andolina 1995; Hill 1995; Shendell-Falik & Soriano 1996; Potter 1995; Zander 1991, 1992, 1993, 1995).

Hill (1995:167) maintains that a "CareMap tool reflects the best-practice patterns of the clinicians of all key disciplines and departments across the episode that author the content." A more detailed explanation of the CareMap concept is provided by Potter (1995:131/132) who observes that:-

> "[e]ach CareMap defines the problems that patients in a defined case type typically encounter and thus directs the development of a comprehensive approach to their care. ..... Patient care is a complex phenomenon involving the contributions of caregivers from a variety of health care disciplines. Critical paths/CareMaps represent the collaboration of clinical experts who have defined the minimum clinical standards or essential components of care for every patient with a given diagnosis."

CareMaps can be devised for specific episodes of care that relate to the provision of services within a specific hospital or health care setting. Alternatively, CareMaps can be devised to delineate service for a specific patient population across a continuum of care. The concept of 'Continuum of Care' pertains to the linkage of services that extend beyond a specific agency's boundaries. For instance, the continuum of care can refer to services provided prior to, during and after hospital admissions. Such services can include preventative and health promoting services; acute, sub-acute and rehabilitative hospital care; and community-based health services (Titler and Reiter 1994).

The context in which CareMaps emerged

The 1980s and 1990s have witnessed dramatic changes within health service provision in Western countries. These changes were characterised by a combination of factors including escalating demands for health care services, the development and use of high technology diagnostic and treatment equipment, growing expectations by health care consumers, increasing health care costs, increasing concerns over the effectiveness and efficiency of service delivery and resource utilisation within hospitals, and the emergence and implementation of casemix funding and information systems, such as Diagnosis Related Groups (DRGs) (Fetter 1996; Hindle 1997).

It is within this context that management methods developed in private sector management industries to improve efficiency and effectiveness increasingly were applied in the health sector. In the 1980s, this trend was evident particularly in the United States. Strategies such as *'Total Quality Management'* - an organisational strategy designed to enhance customer satisfaction through devising techniques to manage output quality; the associated approach of *'Continuous Quality Improvement'* - aimed at consistently seeking to enhance the quality of service delivery through evaluating practice; and *'Best Practice'* pertaining to the use of optimal industry standards for efficient and effective service delivery and/or product manufacture, were translated to the health industry (Greenberg & Baron 1995; Hauquitz 1994; Hovenga 1995; Lubitz 1994).

Critical pathways emerged during World War Two as a planning tool for the United States Navy. Critical path tools were used after the war by project management companies as a means to effectively manage and co-ordinate the utilisation of resources. They were subsequently applied by health care organisations, such as hospitals, as a best practice tool to organise and integrate health care delivery (Newman 1995).

Scott and Scott (1997:216) define a clinical pathway as

> "a time-oriented tool used to synchronise the activities of every member of the patient's health care team ..... to enhance the probability that the required care will be provided on a timely basis, thus minimising delays, omissions and cancellations."

CareMaps are an extension of clinical pathways devised both to support a collaborative multi-disciplinary approach to patient/client care, and to enable health care service delivery to achieve, and to be evaluated against, specified positive patient/client outcomes (Zander 1995a). The term 'CareMap' is itself a "registered trademark of The Centre for Case Management, South Natick, NA" (Zander 1995a:1). Akin to Clinical Pathways, CareMaps are applicable to specific patient populations that are treated in high volumes in a hospital; high cost; high risk; and where there is a predictable path of patient care in approximately 60% to 75% of cases (Scott & Scott 1997; Newman 1995).

Fig 1. Care Delivery Map entry point

(The flowchart above is part of the Antenatal Ward Care Delivery Flow Map, excerpts from this flowchart will be shown between the text throughout the article)

The current Antenatal Ward Care Delivery Map builds on and extends the concept of CareMaps and Care paths by focusing on a macro-level comprehensive delineation of all services that are available across multiple trajectories of care for any and all patients/clients who are admitted to the Mater Mothers' Hospital.

CareMap applications and the benefits of their implementation in health care services.

The multiple benefits arising from differing applications of CareMaps within health care services have been well documented. For instance, Zander (1992, 1995b,c) maintains that care maps provide an effective strategy for

health care professionals to operationalise and achieve the goals of Continuous Quality Improvement (CQI), Total Quality Management and Best Practice to the benefit of patients, by directly linking care processes to expected outcomes in a manner that is clearly specified and capable of being managed and evaluated. Potter (1995:132) perceives that "[w]hen integrated into the total quality improvement process, a CareMap provided a model for outcomes management and delivery of a higher quality of care to patients" by promoting continuous quality improvement (CQI) activities and the development of clinical practice guidelines.

Major benefits resulting from the implementation of CareMaps have been identified as including enhancing the implementation of multidisciplinary collaborative care programs, decreasing fragmentation in and increasing access to care services for patients, improving patient care planning and service delivery; and promoting an outcomes management approach to patient care (Hill 1995; Zander 1995b). Additionally, CareMaps can be used as "tools for implementing leadership mission and vision for patient care services"(Andolina, 1995:128).

CareMaps also have proven to be particularly relevant to co-ordinating service provision across the continuum of care. The Case Management model of service provision "is a co-ordinated approach to the delivery of patient care, devised to maximise the integration of multidisciplinary care services required for patients who have high risk, high cost and complex care requirements across either an 'episode of care' or a 'continuum of care', in order to achieve optimum patient outcomes and efficient resource utilization"(Turner, 1999:17).

Hill (1995:150) observes that use of CareMaps reflect the work entailed in assisting patients through the transitional phases of the continuum of care toward the achievement of particular outcomes. Additionally, Hill (1995) maintains that use of a CareMap also beneficially can provide a model to enhance direct patient care through supporting case management systems. Similarly, Shendell-Falik and Soriano (1996) assert that the successful implementation of case management is reliant upon the development of tools, such as CareMaps, to manage services provided by multidisciplinary teams involved in patient care in a manner that relates the processes entailed in care provision with both the identification of outcomes and time lines. Application of such tools also enables organisational inefficiencies in service provision to be identified and addressed, thereby increasing organisational effectiveness and efficiency (Hovenga 1995).

Other benefits derived from the CareMap arise from the processes entailed in their development and implementation. For instance, several authors have stated that the multidisciplinary approach required for the development and implementation of a CareMap can enhance collaboration among disciplines and increase understanding of, and respect for, the differing and complimentary contributions of each discipline in the provision of care for patients.

Weilitz (1993 in Zander 1995c:198) states that the successive stages of CareMap development allow for the documentation of current practice, best practice and ideal practice. The initial stage of CareMap development relating to current practice documents the actual practice that is occurring at the time of commencement of the CareMap project as specified by all disciplines involved in the care process. Similarly, Hill (1995) has identified that the formulation of a CareMap results in a review of current practices and the process-flowcharting of the current system, which will serve to identify the strengths and limitations of present practices. The subsequent phase of best practice is achieved through each professional groups reviewing their current practice through recourse to professional literature pertaining to their specific practice area. According to Weilitz (1993 in Zander 1995c:198), the third stage of ideal practice is actualised through the CareMap development team bench marking aspects of patient care services in relation to other health care organisations providing a similar service to the same patient group.

CareMaps also have been used successfully as an educational tool for clinical and administrative staff, as well as for patient/client and family education as these tools clearly identify all key aspects of patient care processes, which in turn are related to expected patient outcomes. (Hill 1995; Kyzer 1995). The use of CareMaps both as clinical support and educational tools has been documented as increasing patient/family satisfaction with, and participation in, the care process (Zander, 1993b), whilst patient/family versions of maps have been seen to better prepare patients for the care experience (Andolina,1995:128). Additionally, Zander (1995b) also maintains that the implementation of CareMaps enables the progression of professional education to have an Outcome-Based Practice orientation.

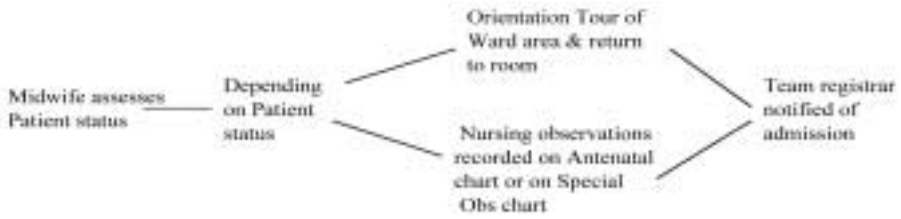

Fig 2. Care Delivery Map continued

The advantages of CareMap development and implementation for the broader organisational level stem from their application to model the resources, staffing, skills and knowledge, and management needs required to provide quality patient services (Zander 1995b).

This paper now will examine the development of, and benefits arising from, the Antenatal Ward Care Delivery Map devised for and at the Mater Mothers' Hospital. Brisbane. Copies of the complete Maps, too large to print here, are available from the Service Development Manager at the Mothers Hospital.

Antenatal Ward Care Delivery Map : Planning and Development

Contemporary organisations encourage the flow charting of their business processes in an effort to stimulate review and evaluation of key service delivery components. All organisations possess a variety of different streams of specific business processes. Within a hospital framework of service, several processes are involved in the maintenance and integrity of select core areas in a hospital's daily functioning such as Medical, Nursing, Information Technology and Administration. If these systems do not work efficiently there is a potential risk of reduced service quality, poor productivity and inappropriate resource usage.

The idea of compiling an Antenatal Ward care delivery map began with a desire to achieve a more complete understanding of the processes that a patient / client experiences during her journey through the Antenatal Ward environment. The understanding of processes and their interrelationships were also primary motives in the conceptual planning of the care map project. It is common in organisations for people to understand their place or part in the continuum of care model. However, this regularly leads to grey areas in understanding the reasons behind the 'why' and 'how' things get done in other departments.

Background discussion.

Initial meetings to explore the Antenatal Ward care delivery map began in August 1997. After deciding that the conceptual framework would encapsulate a broad overview of ward processes from entry point to separation (continuum of care), it took a further twelve weeks (incorporating fortnightly meetings) to produce the initial draft. Map 1 - the Service Delivery Process Map - was then taken to the Multidisplinary Antenatal Ward workteam meeting, to allow members of the health care team the opportunity to be involved in the development and review of several drafts over a nine month period.

The involvement of the multidisplinary health care team engendered feelings of ownership and commitment to the vision of care map delivery development. The total involvement of a variety of disciplines helped foster a holistic approach to the unfolding care delivery map through several drafts and alterations. The process of including different health care representatives enabled subtle team building to grow throughout the project.

Several staff initially asked why a care delivery map was being developed. Explaining the concept of process mapping and the benefits this brings to the development and management of effective and efficient care delivery helped their understanding. Time delays in charting the maps due to limited manpower meant there was a risk that staff would lose interest. Some staff had left the organisation and had been replaced with staff who had no previous knowledge of the project. However, despite these setbacks most staff retained enthusiasm and commitment to the project.

When the Service Delivery Process Map (map1) was finally completed and displayed many staff from other units requested assistance to commence flow charting their own care delivery maps - this helped spur the Antenatal Ward team to complete the second map. The second map - Service Delivery Personnel Map - was superimposed on map 1 to depict the different disciplines involved in the identified processes of service delivery. The Service Delivery Personnel Map clearly demonstrates how multidisplinary team members are reliant on each other in managing the quality of service provided. Staff commented that for the first time they were able to see the strong interrelationships between health care team members in the Antenatal Ward.

Flow charts help us to identify the entire process. This was illuminated when the completed Antenatal Ward Service Delivery Personnel Map (map 1& 2) was displayed. At a glance, an overview of the continuum of care is clearly defined through aspects of ward process such as, access and entry, the treatment phase and eventual separation from the ward environment. In short, the care delivery map itself provides a comprehensive overview of the multiple care paths that are in existence within the ward's boundaries, internally and externally, to assist patients / clients at a significant point of their lives.

Patients / clients themselves may also benefit from seeing a graphic display of ward service delivery components by allowing them the opportunity to visualise the different pathways they may take during their stay in the ward. Enhancement of a patient's / client's episode of care may result in greater involvement in and understanding of the different processes during their inpatient experience. Greater acceptance of variances may also be a contributing benefit.

It is also possible to review and analyse inefficiencies in service practice delivery. Care delivery maps enable us to change identified work / process inefficiencies with a resultant increase in staff and consumer satisfaction. Examination of work patterns occurring within processes stimulated us to inquire into our service delivery care practices. For example, is there duplication of similar processes occurring within the completed map ? Is teamwork evident ? Are relationships within the multiple paths understood ?

Possible outcomes include; refinement of duplicated processes; staff skill enhancement programs; staff and patient / client education models; awareness of team functioning; and the ability to see the 'bigger picture'. Review of the care map in its entirety and the ability to conceptualise and understand the continuum of care for patients / clients in the Antenatal Ward may help staff develop a greater perception of what happens to patients / clients 'down the track'. This may result in a reduction in inefficient practices and a 'guarding turf' mentality. Poor quality service may have a domino effect leading to frustration and aimlessness.

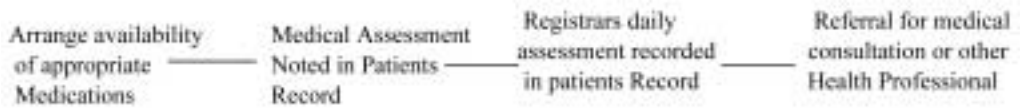

Fig 3. Care Delivery Map continued

Some staff had difficulty in understanding what the Service Delivery Skills Map (map 3) showed them.

This was largely due to its size and complexity. This was overcome by spending time explaining what

they were looking at and why it was developed - the complexity in the map is a reflection of the day to day reality of ward function. Staff were very receptive to the concept of developing a comprehensive education program based on the Service Delivery Skills Map.

The decision to evolve the Antenatal Ward Care Delivery Map into a series of seven individual maps arose from the stimulus of seeing a graphical display of key ward processes (for the first time).

A natural motivation to further explore and articulate improvements and ideas to care practice emerged. Ideas such as developing a skills map, policy procedure and guidelines map, documentation map, timelines map and an outcomes focused map were discussed.

Potential effects of an enhanced employee role include an increase in overall morale, job satisfaction and increased productivity. A flow map is a simple quality tool that is learned easily and effectively to review systems in organisations. Using flow charts helps all staff to be involved in a quality review of their service delivery.

The Development of the Skills Enhancement Program

The Service Delivery Process Map provides an immediate overview of the patient/client continuum of care during their hospital stay in the Antenatal ward. On following one of the stream options along the continuum an additional benefit of this map became evident. The map would assist members of the health team identify his/her learning needs in relation to the patient/client continuum of care.

The complementary Service Delivery Skills Map (map 3) was developed to identify the broad knowledge and skills required of each member of the team. However, for the purpose of this article the Skills Enhancement Program specifically addresses the needs of the midwife and provides the midwife with the opportunity to advance along the continuum of beginner practitioner to expert clinician. The aim of the education program is to provide teaching/learning opportunities that assist the midwife acquire knowledge, skills and behaviours which are required for safe and professional care of patient /clients and their families during their stay in the Antenatal Ward.

Framework in developing the Service Delivery Skills Map

The education program is congruent with both the Sisters of Mercy Mission Statement and the Antenatal Ward Strategic Plan, and is based on the belief that people have physical, emotional, spiritual and social needs and wants and learn from both present and past experiences. Cognitive, affective and psychomotor behaviour is modified when learning is interrelated and proactive.

In the four roles of the midwife (Central to the program is the patient/client and her family). The four steps of the Nursing Process - assessment, planning, implementation and evaluation are depicted in the next circle. This problem solving process underlines the overall midwifery actions which are required to met the needs of the childbearing client/family during the varies stages of the life cycle.

Only a broken line separates the steps of the problem solving process from the four roles of the midwife (Professional, Carer, Educator, Counsellor) as the problem solving process is incorporated within the four roles of the midwife (Board of Nursing Studies 1989).

The teach, learn, reinforce triangle (see Fig. 1)embraces the circles and is so placed in order to highlight the commonalities between the facilitator, midwife and client. Through health teaching, the relationship between the knowledge of the practitioner and the health illness needs of the childbearing client/ family is met. Professional groups within the healthcare team are positioned outside the triangle and form an integral component in the provision of care. The diagram deliberately has no boundaries as it interfaces with the discharge of the patient/client back into the community.

Educational Strategies

A variety of teaching strategies including the use of various media are planned for the implementation of the educational program.

Several self directed learning packages have been developed enabling revision and /or in depth analysis of theory and aspects of midwifery care which relate to clinical practice.

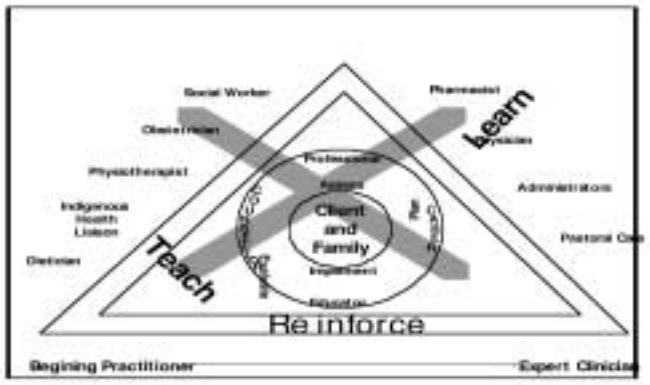

Figure 4 The elements of the triangle.

A skills laboratory will be developed to provide midwives with the opportunity to practice/demonstrate their response and management of obstetrical emergencies. Case scenarios will be presented to assist midwives further develop their clinical reasoning and decision making when approaching the problem that individual clients present which can be confusing and inconsistent with clinical findings.

Mand's (1989) Model of Reflection will be applied to assist midwives become reflective practitioners. Reflection develops at different levels and Schon (1987) reflection in action will be incorporated into case discussion and review.

Assessment

A competency based approach to assessment will be carried out in the clinical area by direct observation of performance. However in reality the opportunity to assess obstetrical emergencies in the clinical area may not arise. In this situation simulated learning/assessment shall occur in the Skill Laboratory.

In several of the Learning Packages provision has been made for self evaluation with the use of assessment tools, while some tools make provision for shares evaluation with peer and facilitators.

Education programs coupled with individual feedback of clinical performance data can be effective in changing clinical behaviour and clinical effectiveness (Zander 1995)

The intent is to devise flexible structures and strategies so that response to re-skilling can be rapid to meet the clients, midwives, and organisation changing needs.

Conclusion

We have explored and described the development and benefits of producing an Antenatal Ward Care Delivery Map to enhance patient and staff outcomes. A fourth map - Service Delivery Policy Procedure and Guidelines map - has recently been completed thus providing assistance in identification of the policies and procedures required for the Antenatal Ward. In addition, it affords staff the opportunity to see what policies are currently in existence and importantly which policies require updating or in fact developing.

Future plans which relate to the Antenatal ward care delivery development program include a fifth map - Service Delivery Documentation Map - to enable accurate defining of the documentation / forms used in care delivery. A sixth map will also be developed to assist and audit the 'timeliness' of care provision - Service Delivery Timelines Map. Finally, a seventh map - Service Delivery Outcomes Map - will allow outcome identification and evaluation of practice delivery to be captured. Inefficiency costs money, therefore the opportunity to review cost effective efficient practices is an essential pursuit to follow.

In conclusion, care delivery maps are simple quality tools that assist most people to gain a more complete understanding of optimal work practices through analysis and review of service delivery practices.

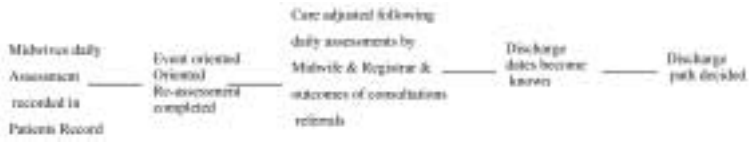

Fig 5. Care Delivery Map continued

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Appendix 1.

Antenatal Ward Care Delivery Map - Section One
Flowcharts displayed in the text are taken from this part of the Care Delivery Map
See below "Admission Direct from Antenatal Clinic".

The full Care Delivery Map is available from :
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