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The evolution of a hospital-based decentralized case management model

The authors present a case study of a highly integrated case management program and the redefinition of the clinical practice model that evolved across the continuum of care as the integration process was achieved.

The central leadership role of the clinical care coordinator (an advanced staff nurse role) as the front-line link between the case manager and the staff nurses was seen as one key in the model's success.

Success was further enhanced by: development of objective-based versus time-oriented pathways; involvement of home health earlier, especially in the more complex discharge plans; and a refocus of the patient education process.

Future initiatives include refocusing the patient education component as part of a "Steps to Recovery" approach that includes appropriate aspects of the objective-based clinical pathways and expanding the number of case management models to include currently underrepresented patient populations.

CASE MANAGEMENT is popular as a means to coordinate patient care and control resources. Techniques employed by case management programs include standardization of care in accordance with predetermined protocols, care maps, pathways, or other guidelines; assignment of case managers or other clinical nurse experts as overseers of care; systematic reporting on the progress of the program as compared to predetermined targets or standards; collection and analysis of data on an ongoing basis to identify causes of variation; and development of new processes to eliminate variation where possible. These programs have gradually become less a distinct or matrix organizational structure and more an integrated part of the patient care delivery system (Brett, Bueno, Royal, & Kendall-Sengin, 1997).

This article is a case study about the development of a highly integrated case management program at one hospital and the redefinition of the clinical practice model that evolved across the continuum of care as the integration process was achieved. The history of the program is reviewed and four changes in process that were necessary for successful integration are described. Recommendations for future system development are presented.

Frye Regional Medical Center is a 355-bed regional referral center located in a small city. The hospital provides tertiary services including cardiovascular and thoracic surgery, vascular surgery, interventional cardiology, oncology, emergency services, home health, and a variety of outpatient clinics and programs. The hospital has successfully positioned itself as the leader in providing services to the community across the continuum.

Case management was implemented at Frye Regional Medical Center in 1993. It was initially designed as a system to analyze and reduce costs by developing protocols for standardization of care. The protocols were based on best practices or benchmarking data. Even

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Figure 1.
Case Management Department Organizational Chart

early in its inception, it was recognized that the program must be consistent philosophically with the concepts of total quality management and shared governance as these programs had been recently introduced into the organization, and were very highly valued. To achieve our purpose and support the conceptual and philosophical structures in place, a decentralized case management system was introduced. The decentralized structure is depicted in Figure 1 (Johnson & Proffitt, 1995).

Development of Case Management Models

At the time it was designed, the Frye Case Management Model was a departure from traditional case management programs. Case management has been in place in public health and social service agencies and insurance companies since the 1970s. The implementation of the prospective payment system led to the introduction of case management in acute care hospitals. Karen Zander developed a system that empowered nurse case managers with the authority to manage an assigned group of patients through a hospital course. This reduced fragmentation of care and led to better control of resource utilization. It improved continuity of care during an episode of hospitalization and encouraged collaboration between disciplines (Zander, 1990).

Early case management progress involved developing documentation and communication systems (Zander, 1992) and assigning the appropriate level of personnel to act as case managers (Lynn-McHale, Fitzpatrick, & Shaffer, 1993). Subsequent iterations included:

- Merging utilization management and discharge planning into the case management process (McNamara & Sullivan, 1995).
- Examining the relationship between structure, the environment, and the case management model (Allred et al., 1995).
- Emphasizing collaboration and coordination among all disciplines as in the Beth Israel Medical Center Model (Adler, Bryk, Cesta, & McEachen, 1995).
- Establishing a multidisciplinary or service manager role (Eckelt, Vassallo, & Flett, 1996);
- Integrating quality management and collection of data regarding quality indicators into the role of the case or "care" manager (Scott, 1996).
- Developing the outcomes manager role with its emphasis on eliminating redundancy and inefficiencies in the case management model itself (Brett et al., 1997). Each step in the process has made case management more central in the patient care delivery process and has tied it more closely to the daily functioning of direct patient care providers.

The decentralized structure of the Frye system stimulated the incorporation of the model into the daily delivery of patient care services. The central role of the care coordinator as the front-line link between the case managers and the staff nurses providing patient care was the key to the model's success. However, despite the natural linkages created by the system's structure, there were barriers to development. These barriers included lack of communication between the care coordinators and case managers, different perspectives on the care coordinator role, involvement of home health after the discharge plan was devised, and overlap and inconsistency in the patient education process. Four changes in process had to occur to make the system successful: (a) development of a leadership role for the care coordinator, (a) development of objective-based versus time-oriented pathways, (c) involvement of home health in an earlier and more complex discharge plan, and (d) refocus of the patient education process.

Developing a Leadership Role for the Care Coordinator

Major components of the case manager and care coordinator roles are described in Figures 2 and 3. The case manager is the resource on financial and process aspects of patient care delivery. The case manager evaluates individual cases and assumes responsibility for those that will be complex or time consuming. The care coordinator is the resource on the unit to the staff and physicians. The care coordinator oversees the process for the more routine patients and refers patients with more complex discharge planning needs to the case manager.

THE ROLES overlap in the areas of care coordination and resource management. This necessitated developing strong communication skills in the care coordinators and a systematic approach to communication about patient needs. Strong problem-solving skills are also important. Some staff nurses who had assumed these roles had learning needs in these areas. A two-phase plan was developed to address these needs: phase one — developing a care coordinator orientation; phase two — implementing a care coordinator peer or support group for continuing education and continued skill and knowledge development.

The orientation included four modules designed to assist the care

coordinators in seeing the overall process and in developing leadership skills. The modules presented covered the following topics:

- Overview of the health care industry, managed care, and the need for case management
- The Frye Case Management Model and the role of the care coordinator
- Leadership/problem solving/communication skills for the care coordinator
- Review of the roles of the other departments

The topic content was appropriate to the staff nurse knowledge level and became increasingly more complex with time. The overview (module 1) was actually presented twice before it was fully understood by the participants and the second presentation was considerably more complex.

The nursing managers for the departments were strongly encouraged to attend the sessions. The case managers facilitated the sessions and also attended. Both the nursing managers and case managers acted as presenters as well as participants. Outside speakers were also used as presenters.

Having the managers, the care coordinators, and the case managers together proved invaluable. These sessions enabled all of the participants to gain a common vision of the case management program, and to develop a common understanding of skills and processes required to make the program a success.

The managers, care coordinators, and case managers also participate in the ongoing support groups and this has developed even further improvements in communication and collaboration. Multidisciplinary team meetings are also held weekly on the nursing units. The care coordinators facilitate the meetings. All disciplines are represented including case management. Patient progress toward goals is reviewed and multidisciplinary plans are implemented, evaluated, and revised as needed.

In the future, all RNs will be educated in the same manner so

Figure 2.
Case Manager Role

1. Directs, coordinates, and supervises the care delivered to a designated caseload of specific groups and case types of patients.
2. Facilitates the case management process.
3. Maximizes positive financial outcomes for designated case types.
4. Initiates and contributes to modifications/changes in nurse and physician practice patterns to achieve quality of care, patient satisfaction, and appropriate use of resources
5. Optimizes efficiency of operational systems through continuous quality improvement.
6. Integrates utilization review activities into case manager role.

Figure 3.
Clinical Care Coordinator Role

1. Admit/Discharge
- A. Complete assessment and initiate discharge planning upon admission.
- B. Evaluate patient/family expectations regarding hospitalization (critical pathway serving as comparison).
- C. Initiate post acute hospital support:
  - 1) Home health referrals to case managers.
  - 2) RCU referrals to case managers/social workers.
  - 3) Rehab referrals to rehab intake coordinator.
  - 4) Nursing home and financial need referrals to social workers.

2. Coordination of Care
- A. Collaboration with physician regarding medical care, assessment, and needs.
- B. Facilitation of multidisciplinary team meetings focusing on admissions, ongoing plan of care evaluations, and discharge planning.
- C. Daily evaluation of patients for appropriate level of care.
- D. Integration of patient/family concerns into plan of care.

3. Resource Management
- A. Patient/family liaison with physician, ancillary staff, and consultants.
- B. Every shift monitoring of critical pathway
  - 1) Variance documentation.
  - 2) Variance intervention and documentation within 8 hours.
- C. Monitor barriers to goal attainment (documents as part of variance).
- D. Community services evaluation.
- E. Communicate unresolved barriers to case managers.

4. Teaching
- A. Staff support for routine training as roles change/develop.
- B. Patient/family, staff, multidisciplinary team as need arises.

5. Process Improvement (PI)
- A. Review of variance reports and other trends for improvement planning.

they will all act as care coordinators for a given patient assignment. The case managers will retain their roles as experts and resources to the direct patient care providers.

The initial clinical pathways were the traditional time-line type pathways. These were very helpful early in the case management program implementation, as they focused all care providers on a single standard or plan for providing care and enabled us to perform detailed analysis when variations from the plan or pathway occurred.

As the case management program progressed, much of the plan's detail for patient care was incorporated into standard protocols or physician order sheets. These were reviewed and signed by the physicians and became a permanent part of the medical record. Some, although not all, of the length of stay and cost analyses were completed using cost accounting or other computer-generated data. This eliminated the need for the majority of the manual variance documentation and analysis. The traditional pathways became redundant with these other systems and were not well utilized.

As a result, the outcome-based pathway format was developed as a replacement. An example is presented in Figure 4. The value of this type of pathway is that it enables health care providers from all disciplines to focus on predefined objectives and tailor their prescriptions to reach this predefined point. These objectives also became a part of the patient/family education process. Further information about patient/family education will be presented later.

Outcome-based pathways serve more as communication and focusing tools rather than detailed plans for therapy. Another advantage is that objective-based pathways do not become outdated as quickly as the more traditional pathways. Many plan changes can be made without a change to a given objective. All the disciplines involved in developing the objective-based format have expressed satisfaction with it and all new pathways and revisions of pathways are objective based at Frye.

The hospital's home health agency has become an integral part of the continuum for discharge planning and quality patient care. To help solidify the coordination, there has been a clarification of home health involvement in three crucial areas: (a) intake, (b) preadmission/discharge planning, and (c) home care planning. Staff from the acute hospital as well as from the home health agency are used to meet the needs of the patient at home. This further reinforces collaboration and planning among responsible caregivers for the hospital stay and the home health program.

In the area of intake, the home health agency has two critical positions which provide for coordination activities within and outside of the agency for referring entities. The first of the positions is a patient care liaison position. This person is responsible for coordinating home health referrals to the agency from the acute care setting including predischarge screening for qualification, payer source, service needs, equipment, and any other identifiable needs the patient may have. The screening process consists of reviewing the patient chart, speaking with the patient and family, and discussing the case with hospital case managers and physicians. This position has been vital to the patient's smooth transition from the acute care setting to home health. The second position is an intake coordinator who is responsible for the referrals generated from physician offices, other acute care facilities, skilled nursing facilities, and other external referral sources. The position functions similarly to the patient care liaison in the screening process and assists the patient with the transition to the home setting.

A good example of the preadmission discharge planning process is the home health knee and hip joint surgery program. The program's objectives are to decrease length of stay and readmissions by increasing patient education prior to surgery, identifying possible complications prior to discharge from the hospital, and physically conditioning the patient for the surgery preoperatively. Upon a referral from the orthopedic surgeon, the home health agency's physical therapist visits the patient in the home. The visit consists of educating the patient regarding exercises for strengthening and range of motion, expectations postoperatively, and equipment. A home assessment, including caregiver identification, is also completed during this visit. The patient is subsequently admitted to the hospital for surgery with an exercise regimen, equipment, and a better understanding and readiness for surgery. Following discharge, the home health agency therapist visits the patient in the home to reinforce the physical therapy program for the patient. Nurses and other disciplines from the home health agency provide other skilled care as required.

Hospital staff play a central role in the home non-stress testing (NST) program, and the well baby visit program. In the first program, a labor and delivery nurse goes to the home to provide the NST. The visit is charged as a home health visit. The advantage to the mother is that it eliminates the need for a trip to the hospital when she is feeling unwell. This visit also provides an opportunity for the nurse to reinforce prenatal teaching and to evaluate and assist with questions regarding care of the baby in the home. Similarly, in the well baby visit program, the hospital staff makes the initial visit to the home, providing a link between

Figure 4.
Frye Regional Medical Center
Coronary Artery Bypass Graft
Critical Pathway

Target LOS: _____
Admission Date: _____
Discharge Date: _____

Phase I Pre CABG	Phase II Post CABG Hr. 1 - 12	Phase III Post CABG Hr. 12 - 24	Phase IV Post CABG Day 2 - 5
Goal: Pt/Family states understanding of post OP plan.	**Goal:** Extubation within 12-hours of CVICU admission.	**Goal:** Transfer to telemetry unit.	**Goal:** Patient is stable and is ready for discharge from hospital.
Criteria: 1. Demonstrates use of ISB, deep breathe and cough.	**Criteria:** 1. Fast track protocol in place.	**Criteria:** 1. Participates in pulmonary toiletry.	**Criteria:** 1. Initiates pulmonary toiletry.
2. VS, Labs, Meds., as ordered.	2. Hemodynamically stable.	2. VS stable.	2. VS stable.
3. Pt./family communicates DC needs.	3. Family verbalizes understanding of ongoing treatment plan.	3. Patient verbalizes understanding of treatment plan.	3. Patient/family states DC plan in place.
4. NPO as ordered.	4. Tolerates oral intake per extubation orders.	4. Tolerates diet as ordered.	4. Tolerates diet as ordered.
5. Ambulatory needs assessed.	5. Turned q2 hours and HOB up.	5. Up to chair ambulates with assistance.	5. Ambulates in hall with assistance.
Phase I Interventions:	**Phase II Interventions:**	**Phase III Interventions:**	**Phase IV Interventions:**
1. RN to explain pulmonary care. Use of ISB.	1. Post extubation - deep breathe and cough. Use of ISB.	1. Encourage deep breathe and cough. Use of ISB.	1. Encourage deep breathe and cough. Use of ISB.
2. Systems assessed.	2. Systems assessed.	2. Systems assessed.	2. Systems assessed.
3. Case manager meets with patient/family to discuss plan.	3. Continue to support discharge plan.	3. Reassess for change in discharge plan.	3. Meet with patient/family/support person for discharge needs.
4. Dietary needs discussed with patient/family.	4. Ice chips - liquids.	4. Diet progresses from liquid - card. soft.	4. Diet progresses to patient TOL.
5. Ambulatory needs determined.	5. Turn q2 hours while on vent.	5. Up to chair.	5. Encourage participation in ADLS.
Goal met: Yes ___ No ___ If no, give reason:	**Goal met:** Yes ___ No ___ If no, give reason:	**Goal met:** Yes ___ No ___ If no, give reason:	**Goal met:** Yes ___ No ___ If no, give reason: Day 2: Day 3: Day 4: Day 5:
7A - 7P RN	7A - 7P RN	7A - 7P RN	7A-7P RN / 7P-7A RN Day 2: Day 3:
7P - 7A RN	7P - 7A RN	7P - 7A RN	Day 4: Day 5:

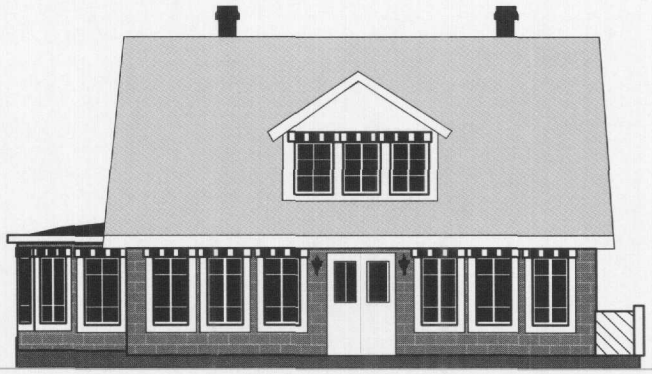
Figure 5.
Patient Pathway Coronary Artery Bypass Graft
Frye Regional Medical Center

* The following is an outline of patient responsibilities. It is only a guide and is expecte to vary for each individual.

Path To

_____

(Patient's Name)
Home



Post-Op Day 3 or 4 (Patient Responsibilities)
Continue your breathing exercises every 4 hours and increase walking distance with assistance. Meet with dietitian. Arrange to have a family member pick you up by noon the day of discharge. Continue to increase your activity at home. Report fever >101 F, chest pain, persistent or foul smelling discharge from chest or leg incision to your physician's office. Be sure you know which medications you will be taking and follow your physician's instructions closely.

Post-Op Day 2 (Patient Responsibilities)
Increase walking distance with assistance. Cough and breathing exercise using heart pillow. Continue to work with incentive spirometer every 2 to 4 hours. Talk to your physician about the chance of going home tomorrow, so you can make arrangements for your family to be with you. Plan to have family member pick you up by noon the day of discharge.

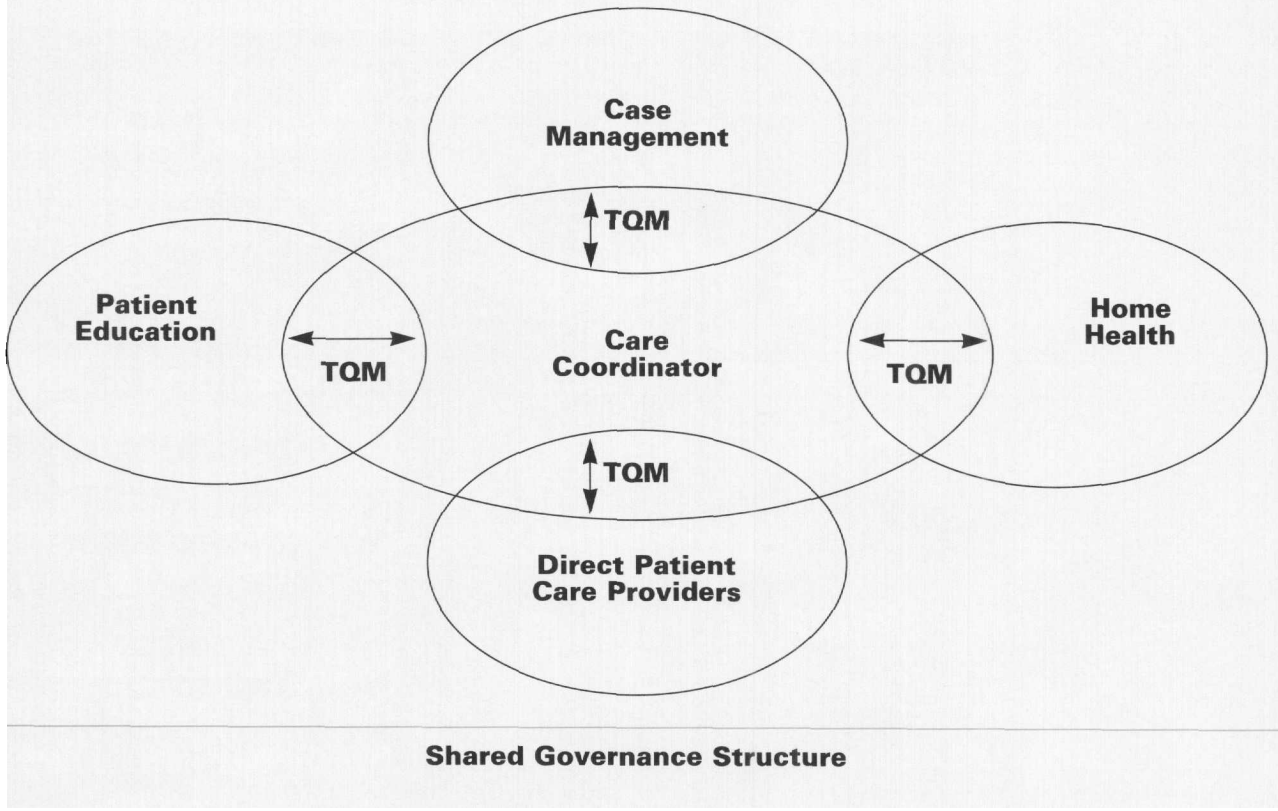
Post-Op Day 1 (Patient Responsibilities)
Transfer to telemetry (step-down unit). Begin cardiac diet. Up in chair. Walk with assistance four times. While awake cough and deep breathing exercises using heart pillow to splint chest incision every 2 hours. Use incentive spirometer (breathing device) every 2 hours while awake. We encourage family to participate in your care to make them aware of your home needs. Ask any unanswered questions.

Day of Surgery (Patient Responsibilities)
CVICU overnight. Once endotracheal tube (breathing tube) is removed begin working with incentive spirometer (breathing device) every 2 hours. Begin coughing and deep breathing using pillow to support chest incisions. If okay with your physician, fluids may be given but restricted.

hospital and home care providers. If further or prolonged home treatment to the infant is required, the referral is sent to the home health staff for followup.

Early in the development of this hospital's case management model, the need for involvement and participation by the patient and family was noted. In our first attempt to fully involve the patient and family, the nursing staff posted the patient pathway in the room. While this enabled the patient/family to clearly see the plan, some problems were identified. For the most part these involved anxiety or dissatisfaction on the part of the patient/family if patient progress did not exactly match the plan identified in the pathway. They often asked "what was wrong?" The explanation that some variation was expected was not well accepted.

Figure 6.
Continuous Care Management



A multidisciplinary team reviewed this concern. Input was received from all health care providers including physicians. There was agreement that patients should be aware of the plan of care and milestones toward their recovery, but the detailed pathway was obviously not the best method for presentation of this information.

The "Steps to Home" program was developed to refocus the patient-education process and satisfy the patient/family need for an appropriate amount of information about the recovery process. A sample of this program is shown in Figure 5. The program has been in effect for approximately 18 months, and there are currently six "steps" plans in effect. The steps are used in conjunction with other patient-education tools. Patient and health care provider satisfaction with the program has been very high and we continue to develop step protocols for other diagnoses.

The evolution and integration of the case management model at Frye Regional Medical Center was described. The clinical practice model currently in place at Frye is shown in Figure 6. This model demonstrates the overlap and processes of the various components of the patient care delivery model, the shared governance environment which surrounds the processes and supports them, and the TQM philosophy which enables the various components of the model to collaborate effectively. Positive results include:

- Improved patient outcomes as measured by the complete or significant achievement of case management objectives in 90% of the diagnoses measured.
- 95% improvement in staff participation in the process as measured by the TQM indicator.
- Continued physician satisfaction and participation on various case management and TQM committees as well as multidisciplinary team meetings.

In the future we plan to:

- Involve home health earlier and more consistently throughout the process.
- Expand the shared hip and knee joint, NST, and well-baby models to other services including pediatrics and intravenous therapy.

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The success of this nursing center is contingent on the center's ability to rely less on grant funding and gain steady revenue sources while managing costs. Ongoing strategic planning has been key to the center's financial health and viability. Several organizational structures are in place to help achieve financial viability. The Health Annex has an executive committee and a finance subcommittee. The role of the finance subcommittee is to establish, monitor, and review the financial benchmarks of the practice and to recommend strategies to achieve fiscal viability. The Financial Oversight Group for Practice provides financial oversight and direction to all PNN practices. The group's functions include establishing, tracking, and reviewing monthly performance benchmarks and comparing these to business plans; advising PNN on business expertise needed and potential resources; and submitting supplemental reports to university leadership as required.

The executive committee was formed to review and recommend policies on management and operations of the Health Annex programs and on operating budgets. It assures compliance with all applicable laws and regulations. The committee is chaired by the director of academic practices.

Requisite strategies to achieve long-term financial viability include securing grants and gifts as a bridge, enhancing short-term fee-for-service activities during transition periods, and diversifying short-term activities to grow long-term specialization (for example, a complementary care model). Strategic planning benchmarks for the next 4 years include increasing managed care volume by 20 per month, increasing mental health volume by 10 per month, increasing family planning revenue by 20% annually, increasing fee-for-service volume by 10 per month, and obtaining grant funds ranging from $100,000 to 150,000 annually. In addition, the center needs to maximize receivables and control expenses.

Our experience has shown that 90% of the care required by clients in the linked practices can be provided by advanced practice nurses at current staffing levels. However, we no longer believe that we can sustain ourselves on managed care contracts alone although we clearly cannot succeed without them. A community-based primary care practice requires a number of diverse funding streams for sustainability.**$**

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- Refocus the entire patient education program to the "Steps to Recovery" approach.
- Redefine the care coordinator role as an advanced staff nurse role and include it in the clinical advancement program.

We believe these future steps will completely integrate the models into a patient care delivery system which supports quality, resource efficiency, collaboration, and interdisciplinary cooperation as well as continuity of care.**$**

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