

HEALTH POLICY REPORT

Coordinating Care — A Perilous Journey through the Health Care System

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In the United States, 125 million people are living with chronic illness, disability, or functional limitation.¹ The nature of modern medicine requires that these patients receive assistance from a number of different care providers. Between 2000 and 2002, the typical Medicare beneficiary saw a median of two primary care physicians and five specialists each year, in addition to accessing diagnostic, pharmacy, and other services. Patients with several chronic conditions may visit up to 16 physicians in a year.² Care among multiple providers must be coordinated to avoid wasteful duplication of diagnostic testing, perilous polypharmacy, and confusion about conflicting care plans.

The particularities of American health care, with its pluralistic delivery system that features large numbers of small providers, magnify the number of venues such patients need to visit. Care must be coordinated among primary care physicians, specialists, diagnostic centers, pharmacies, home care agencies, acute care hospitals, skilled nursing facilities, and emergency departments. Within each of these centers, a patient may be touched by a number of physicians, nurses, medical assistants, pharmacists, and other caregivers, who also need to coordinate with one another. Given this level of complexity, the coordination of care among multiple independent providers becomes an enormous challenge.

Care coordination has been defined as “the deliberate integration of patient care activities between two or more participants involved in a patient’s care to facilitate the appropriate delivery of health care services.”³ Not only is care coordination needed among multiple providers, but coordination is also required between providers and patients and their families. Particularly for young children and elderly patients, the number of coordination relationships can multiply geometrically in the not-unusual case of three different provider organizations (with several caregiv-

ers in each organization) having to interact with a patient plus three distinct family members.

Care coordination is required when traditional continuity of care — the relationship between a single practitioner and a patient that extends beyond specific episodes of illness or disease⁴ — is lacking. Continuity and fragmentation of care can be viewed as opposite ends of a spectrum. In unusual cases in which continuity is nearly total, coordination is rarely needed. In the most common situation in which continuity is limited and care is fragmented, coordination is essential. This report assesses the quality of care coordination, lists barriers to coordinated care, and discusses some solutions to improve care coordination.

COORDINATING CARE — HOW ARE WE DOING?

Recent research strongly suggests that failures in the coordination of care are common and can create serious quality concerns. Table 1 lists several studies documenting some of these problems. For example, referrals from primary care physicians to specialists often include insufficient information, and consultation reports from specialists back to primary care physicians are often late and inadequate.^{5,6} When patients are hospitalized, their primary care physicians may not be notified at the time of discharge, and discharge summaries may contain insufficient information or never reach the primary care practice at all.¹¹ The studies listed in Table 1 do not comprise a rigorous review of the literature but provide examples of the kinds of difficulties in care coordination that patients and their families and caregivers face. In addition to research studies, the voices of patients and their families remind us that the coordination of their care among multiple providers is often flawed.¹⁷

Table 1. Problems with Care Coordination.

Domain of Care Coordination	Research Findings
Among providers	
Coordination between primary care physicians and specialists	<p>A study of referrals by 122 pediatricians found that no information was sent to the specialist in 49% of referrals. The referring physician received feedback from the specialist 55% of the time.⁵</p> <p>In a study of the adult referral process at an academic medical center, 28% of primary care physicians and 43% of specialists were dissatisfied with the quality of information they received from each other; 25% of the time, specialist consultation reports had not reached the primary care physician 4 weeks after the specialty visit.⁶</p>
Coordination between primary care physicians and emergency departments	<p>In almost 33% of emergency department visits studied, information that included medical history and laboratory results was absent.⁷</p> <p>In 2004, 30% of adults seen in the emergency department reported that their regular physician was not informed about the care they received there.⁸</p>
Coordination between physicians and sources of diagnostic data	<p>Among patients who had visited at least one physician in the previous 2 years, 17% reported that test results or medical records were not available at the time of a scheduled appointment.⁸</p> <p>Adults with chronic illness who had seen a physician in the previous 2 years reported that either test results or medical records were not available at the time of a scheduled visit or the physician unnecessarily ordered a duplicate test 22% of the time for patients seeing one physician and 43% of the time for patients seeing four or more physicians.⁹</p>
Coordination between hospital-based physicians and primary care physicians	<p>A 2005 survey of U.S. adults with chronic illness or with a recent acute illness showed that one third of those who had been hospitalized in the previous 2 years reported that no follow-up arrangements had been made after hospital discharge.⁹</p> <p>One study found that fewer than half of primary care physicians were provided information about the discharge plans and medications of their recently hospitalized patients.¹⁰</p> <p>A literature review of information transfer between hospital-based and primary care physicians found that only 3% of primary care physicians were involved in discussions with hospital physicians about patients' discharge plans; 17 to 20% were always notified that the patient had been discharged; and fewer than 20% had received a discharge summary at 1 week after discharge. In addition, 25% of discharge summaries never reached the primary care physician, 38% of discharge summaries did not include reports of laboratory results, and 21% did not list discharge medications. In 66% of cases, primary care physicians contacted or treated patients after hospital discharge before receiving a discharge summary.¹¹</p>
Between providers and patients and their families	
Coordination between physicians and patients and their families	<p>A study showed that 75% of physicians do not routinely contact patients about normal diagnostic test results, and up to 33% do not consistently notify patients about abnormal results.⁷</p> <p>In a 2004 survey, 18% of people who had visited a physician during the previous 2 years reported receiving conflicting information from various doctors; 24% reported leaving a physician visit with important questions unanswered, and 41% of those receiving regular prescriptions reported that their physician had not reviewed their medications and had not explained side effects.⁸</p> <p>In one study, 50% of patients left the office visit not understanding what they were told by the physician.¹²</p> <p>In another study, when physicians asked patients to restate the physician's instructions, the patients responded incorrectly 47% of the time, indicating a lack of clarity by the physician.¹³</p> <p>According to a study of more than 1000 audiotaped visits with 124 physicians, patients participated in medical decisions only 9% of the time.¹⁴ Active participation in care is associated with healthier behaviors, better treatment of chronic disease and medication adherence, and better care coordination.^{15,16}</p>
Coordination between hospitals and patients and their families	<p>In 2005, only 33% of adults who had been hospitalized in the previous 2 years and who were prescribed a new medication received information as to whether they should take their prehospital medications; 48% reported not routinely getting information about the side effects of drugs.⁹</p>

BARRIERS TO SEAMLESS COORDINATION

OVERSTRESSED PRIMARY CARE

Care coordination is virtually impossible without a strong primary care foundation to the health care system. This foundation may be crumbling. U.S. medical graduates rarely choose careers in

primary care.¹⁸ With large panels of patients and a growing number of tasks to perform, primary care physicians can no longer provide high-quality short-term, long-term, and preventive care during a 15-minute visit, let alone perform care-coordination functions for which they are not reimbursed.¹⁹

The tasks that primary care physicians must

accomplish are far more complex and time-consuming than they were a decade ago.²⁰ It has been estimated that it would take a physician 7.4 hours per working day to provide all recommended preventive services to a typical patient panel, plus 10.6 hours per day to provide high-quality long-term care.^{21,22} Forty-two percent of primary care physicians reported not having sufficient time with their patients.²³ Providing information to patients and engaging in shared decision making take more time and thus are insufficiently done in the primary care visit.^{24,25} The addition of care coordination to an impossible schedule cannot work.

LACK OF INTEROPERABLE COMPUTERIZED RECORDS

In 2005, only 15 to 20% of physician offices and 20 to 25% of hospitals had implemented electronic medical-record systems.²⁶ Rarely can health facilities access electronic information from all other facilities in the same geographic area.²⁷ The only advanced regional health-information system is the Indiana Network for Patient Care, which allows physicians, hospitals, and emergency departments to obtain rapid access to clinical information from many provider organizations in central Indiana.²⁸

Analysis of the benefits of regional health-information systems is in its infancy. In one randomized study, patients in emergency departments whose emergency physician had access to their clinical data were compared with patients for whom the data were not provided. Costs for the intervention group were lower than for the control group at the emergency department of one hospital (which featured a well-organized work flow) but not at another hospital (whose emergency department was less well organized). No differences were found in rates of admission or repeat emergency-department visits. This study suggested that interoperable computerized records have the potential to reduce costs if the entity receiving the information is organized to make use of the data; the effect on quality or medical errors was not measured.²⁹

DYSFUNCTIONAL FINANCING

Most dollars are paid to physicians on the basis of quantity rather than quality and on face-to-face visit time rather than the between-visit time required for care coordination.³⁰ Neither hospitals

nor primary care physicians have a financial incentive to offer the discharge care needed to smooth the transition between hospital and home. Pay-for-performance systems, which provide a small percent of physician revenues, are generally based on specific measures that are less relevant for patients with multiple diagnoses, those most in need of care coordination.³¹

LACK OF INTEGRATED SYSTEMS OF CARE

Care coordination is more challenging when health care is delivered in many small practices. Forty-seven percent of private physicians work in practices of 1 or 2 physicians; the percentage of physicians in groups of 20 or more did not increase between 1996 and 2001.³² Continuity of care may be deteriorating, which requires more care coordination, with many patients receiving fragmented care in emergency departments or "minute clinics" because they are unable to obtain prompt access to primary care. Care coordination is more difficult for small, independent providers who cannot easily access patient records from other independent providers.

MODELS FOR IMPROVED CARE COORDINATION

A number of proposals seek to improve care coordination. Several of these proposals are at the innovation stage and have not been rigorously evaluated; others are structured interventions tested in controlled trials. What follows is a review of a few of these proposals in the domains of primary care and discharge after hospitalization.

COORDINATION BETWEEN PRIMARY CARE AND SPECIALTY CARE

Electronic Referral

Many specialty consultations can be conducted without the need for a patient to see the specialist. For example, an endocrinologist who receives laboratory data and a medication history may be able to provide advice about the care of a patient with diabetes. A nephrologist who is given proper information may be able to answer a primary care request about an abnormality in electrolytes or renal function. A dermatologist who receives a patient's history plus a digital photo can often diagnose a skin condition. Electronic referral (e-referral) has a number of advantages: it can

hasten access to specialists, reduce costs, and improve care coordination.

Some practices have implemented e-referral systems in which primary care physicians e-mail data regarding the patient's medical history, physical examination, laboratory tests, and radiographic results to specialists, asking specific questions about the patient. If those questions can be answered without the need to see the patient, the specialist e-mails back the response. E-referrals with specialists have been found to improve care coordination in the GreenField Health primary care practice in Portland, Oregon.³³ The implementation of e-referral systems for gastroenterology, cardiology, and other specialties at San Francisco General Hospital has markedly reduced waiting times for specialty appointments. Group Health Cooperative of Puget Sound uses a secured-messaging system through its electronic medical record in which primary care physicians can send nonurgent electronic consult requests to specialists and receive a response within 24 hours. This system appears to reduce unnecessary face-to-face specialty visits while improving the coordination of care.

E-referral can be successfully implemented in integrated systems, community health centers, and academic health centers — organized systems in which specialists are often salaried. In the private fee-for-service context, the loss of specialist income is a powerful barrier to e-referral, a barrier that might be overcome if health plans compensated specialists for the time spent handling e-referrals.

Referral Agreements

Some organizations are adopting referral agreements between primary care physicians and specialty practices that specify the responsibilities of each party. Referral agreements outline which clinical conditions are best managed within primary care and which conditions are best referred, specify which studies should be performed before specialty referral, and obligate the specialist to see the patient promptly, answer the questions posed by primary care, and report back to primary care in a timely fashion.³⁴ Although referral agreements are not in common use, they have been implemented in both dispersed and integrated delivery environments.

The dispersed Family Care Network, with 48

family physicians at 12 sites in northwest Washington State, negotiated an agreement with a cardiology practice that improved the referral process for all parties. The agreement specified the diagnoses that warranted referral, the studies that primary care needed to provide, and the timeliness of specialty appointments and written specialty consults. The agreement addressed whether the referral was a one-time-only consult, a permanent transfer of cardiac care to the cardiologist, or comanagement by primary care and cardiology. The Family Care Network is negotiating similar agreements with other specialties. Referral agreements have been developed in the integrated Veterans Health Administration system, facilitated by the systemwide electronic medical record. Diagnosis-specific templates make the referral process quick and easy for primary care physicians and specialists.

For both e-referral and referral agreements, anecdotal information shows improvements, such as shorter waiting times for specialty consultation, better information flow between primary care physicians and specialists, and more timely feedback from specialty practices to primary care. More systematic study is needed to rigorously evaluate the merit of these innovations.

CARE AFTER HOSPITAL DISCHARGE

Hospitalist-Initiated Projects

In the past, many patients were attended by the same physician in ambulatory and inpatient settings. The hospitalist movement, which separated the outpatient physician from the inpatient hospitalist, created discontinuity at a critical juncture of the patient's life. Hospitalist leaders are seeking remedies for this "voltage drop" in information after discharge. Working with surrounding community health centers, Boston Medical Center has reengineered the discharge process with the adoption of a comprehensive discharge plan that includes medications, lifestyle changes, follow-up care, intensive patient education geared to the patient's language and literacy level, and timely information flow to and from primary care.³⁵ The Hospital Patient Safe D(ischARGE) project has developed a "discharge bundle" of three patient-safety interventions — a reconciliation of medication, discharge education, and a post-discharge continuity check by a clinician — to improve the transition period after discharge.³⁶

Advanced-Practice Nursing

Mary Naylor at the University of Pennsylvania School of Nursing has developed a program for improving the coordination of care for older adults who have been hospitalized for heart failure complicated by other chronic health conditions. The intervention involves having advanced-practice nurses make in-hospital visits, post-discharge home visits, and phone consultations. Rehospitalizations, deaths, and total costs were significantly lower for the intervention group than for the group providing usual care.³⁷ Translating these findings into the real world, Naylor is collaborating with Aetna and Kaiser Permanente to develop, evaluate, and institutionalize the program in both dispersed (Aetna) and integrated (Kaiser Permanente) medical environments.

Care Transitions Program

Eric Coleman has developed the Care Transitions Program to address the problems of patients who are discharged from hospital to home. Coleman proposed that two things are needed to improve care coordination: patient activation and coaches. Many problems in care coordination can be solved only by the parties who are present both before and after a handoff: the patients and their families. Moreover, since a busy clinician cannot manage care coordination, a coach can assume care-coordination responsibilities. In Coleman's model, coaches do not actually perform post-hospital care; rather, the coach's role is to train patients and their families to coordinate care for themselves, which fosters independence. For example, if a dressing needs to be changed on a leg that is draining fluid, coaches instruct the family how to change the dressing rather than changing it themselves. If the patient needs to contact the primary care physician, coaches teach the patient how to approach the physician rather than calling the physician on the patient's behalf.

In the Care Transitions Program, advanced-practice nurses are trained as coaches, assisting patients and their families in self-care skills. In Coleman's studies, rates of rehospitalization for the same condition and total costs were significantly reduced at 6 months after discharge, as compared with controls.^{16,38} Moving the program into practice, Coleman is partnering with 77 organizations, including health plans, hospitals, home care agencies, and physician groups, that have adopted the model in a variety of practice settings.

ASSISTING PRIMARY CARE PRACTICES

Practice improvements often fail because they rely on the willingness of physicians, who are already too busy, to take on additional work. As described above, the primary care physician can no longer provide short-term, long-term, and preventive care in a 15-minute visit. The addition of care coordination to this list of tasks guarantees failure.

"Teamlet" Model

The primary care "teamlet" model addresses the inadequacy of the 15-minute visit by changing the care provider from the lone physician to a two-person team for patients needing support for self-management of long-term care and care coordination and by extending the 15-minute visit into care that is provided before the visit, during the visit, after the visit, and between visits for those patients. Because some practices have larger teams, the teamlet model recognizes that the two-person dyad is part but not all of the larger team. With a two-person teamlet that works together every day, the disadvantages of larger teams, which require multiple person-to-person interactions, are minimized.

The nonphysician teamlet member, who can be called a coach or another suitable name, would ideally be a registered nurse or an advanced-practice clinician but in small private practices is more likely to be a retrained medical assistant. The coach handles care before visits, after visits, and between visits and may accompany the physician during the visit. Details of this extended encounter are described elsewhere.³⁹ Pertinent to care coordination, the coach can assist with paperwork and authorizations and can help patients obtain necessary tests and appointments needed before referrals. Using reminder systems and checklists, the coach makes sure that consultation reports come back from specialists and that results are transmitted to patients. Each clinician-coach teamlet works out which functions the coach is adequately trained to perform; the clinician must be confident in the coach's competence before delegating any task.

Variations of the teamlet model are being tried at several primary care practices. In two fee-for-service practice settings that assign medical assistants as teamlet coaches, the model has been financially viable because physicians, whose duties in some routine functions are handled by the

coaches, can see one or two more patients per day, thereby increasing revenues.⁴⁰

Paying for Care Coordination

Most primary care practices receive fee-for-service payment, which covers visits but does not reimburse between-visit services. A study of 11 family physicians in different regions of the United States found that 13% of the workday was spent coordinating care.⁴¹ In a separate study involving 16 geriatricians, the physicians spent 14% of the workday on uncompensated between-visit care coordination.⁴² If primary care visits were reimbursed at an adequate level to cover work that was performed between visits, the uncompensated time would not be such a problem; however, primary care payment does not provide reasonable compensation for the between-visit work.

A payment reform that has received substantial attention is the institution of payment for care coordination, paid over and above the existing fee schedule and adjusted to the complexity of the patients' conditions requiring substantial care coordination. Such a payment would create an incentive for primary care practices to improve between-visit coordination of care for their patients.⁴³ The American College of Physicians and the American Academy of Family Physicians have strongly advocated for a care-coordination payment under Medicare, and the Medicare Payment Advisory Commission, an important body advising Congress on Medicare policy, has reported favorably on this new payment idea, citing evidence that care coordination improves quality and may reduce costs.⁴⁴

ORGANIZATION OF HEALTH SERVICES

Although specific innovations may contribute to better coordination of care, consideration must also be given to how the overall organization of health services could facilitate or impede improvement in coordinating care. The most efficient structure for coordinating care is a system with a strong primary care foundation in which the primary care practice, in partnership with its patients, consciously assumes the responsibility for coordinating care throughout the health care system. With a primary care hub, all information resides at the hub and with the patient, and communications flow in and out of the hub. The alternative, multiple independent providers without a

primary care center, fails to assign responsibility to anyone and, if all providers receive all clinical information about their patients, necessitates many more separate communications. Moreover, the practice of generalism — concern with everything about a patient — requires a different set of skills and expectations from those of the practice of specialism or “partialism,” which calls on equally important but distinct skills and responsibilities for one part of a patient's health. Thus, the strengthening of primary care may be the most significant macro health policy capable of improving care transitions.

During the past year, the patient-centered “medical home,” which has been promoted by primary care organizations, has become a prominent concept in health care reform. A set of general principles describing the ideal medical home were promulgated in February 2007 by the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Physicians, and the American Osteopathic Association.⁴⁵

The medical home envisions a medical practice that is based on the same concepts put forth 40 years ago by primary care advocates: first-contact care, continuity of care over time, comprehensiveness, and responsibility to coordinate care throughout the health system. In the current iteration of this venerable idea, practices would be designated as a medical home if they conform to a set of standards (not yet established) that are considerably more specific than the general principles. Medical practices that meet the criteria would receive higher levels of reimbursement, including payment for care coordination.⁴⁶ The additional payment would finance increased staff support, such as that proposed in the teamlet model. Alternatively, the medical home could be reimbursed through a comprehensive per-patient payment that eliminates fee-for-service altogether.⁴⁷ The medical home is expected to contain health care costs by reducing unnecessary hospital admissions and emergency department visits.²⁰

In 2005, 36% of primary care physicians were working in practices of one or two physicians.⁴⁸ It is difficult to imagine that such small practices could meet the challenging criteria for becoming a certified medical home. Nor is it easy to envision small primary care offices having the resources to successfully coordinate care; the

effort required to coordinate with specialists, hospitals, home care agencies, and multiple insurers is overwhelming. Integrated delivery systems such as the Veterans Health Administration system and Kaiser Permanente have substantial advantages over smaller, independent practices in achieving the standards for a medical home and in coordinating care.

The adoption of electronic medical record systems, which will undoubtedly be a feature of the medical home, is higher in integrated medical groups,⁴⁹ simplifying and speeding information flow critical to care coordination. Integrated systems can accumulate financial, personnel, and other resources to plan and implement the improvements needed to qualify as a medical home. The financial incentives of globally budgeted systems favor the development of teams or teamlets, which are a feature of the medical home and essential in helping physicians to coordinate their services. Electronic portals for patients that are common in integrated systems assist in coordination with patients and their families, whereas internal messaging makes possible immediate handoffs among primary care services, specialists, hospitalists, and other services. Evidence suggests that integrated systems provide higher quality care than dispersed practices and also outperform loose networks of physician practices.⁴⁹⁻⁵¹ Perhaps the successful implementation of the medical-home vision requires the movement of ambulatory care delivery in the direction of larger, integrated systems organized as multispecialty groups.

As continuity of care diminishes with fewer primary care physicians, more part-time physicians, and the divorce of inpatient and outpatient practitioners, coordination of care assumes an increasingly central role. Addressing the flaws in care coordination is more difficult than the usual quality-improvement work that takes place within a hospital service or ambulatory care site. Improvement in care coordination requires that different health care entities, sometimes working in competition, perform together. Only then can all care be coordinated for every patient every day.

This report was adapted from the Kimball Lecture presented to the American Board of Internal Medicine Foundation at its 2007 conference on care coordination, with additional material based on panel presentations and participants' discussions at the conference.

No potential conflict of interest relevant to this article was reported.

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