

Innovation Series 2011

Care Coordination Model:

Better Care at Lower Cost for People
with Multiple Health and Social Needs

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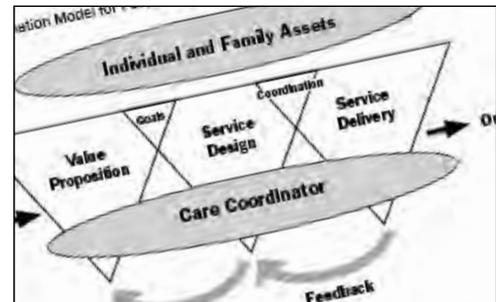
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Institute for Healthcare Improvement, 20 University Road, 7th Floor, Cambridge, MA 02138
Telephone (617) 301-4800, or visit our website at www.IHI.org.



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Authors:

Catherine Craig, MPA, LMSW: *Faculty, IHI; Director of Health Integration, Community Solutions, Inc.*

Doug Eby, MD: *Faculty, IHI*

John Whittington, MD: *Faculty, IHI*

Executive Summary

People with multiple health and social needs are high consumers of health care services, and are thus drivers of high health care costs. The elevated cost of care in this population offers a tremendous opportunity to understand the individuals and their priorities and needs, and to craft a service delivery plan that meets their needs more effectively at a significantly lower cost. This white paper offers a framework for better understanding and supporting the population of individuals with multiple health and social needs, while pushing towards improved individual health outcomes and better experience of care at lower overall per capita costs (referred to as the IHI Triple Aim).¹ The framework relies on a methodical approach to delivering coordination services, not just health interventions, to improve health outcomes while ensuring efficient access to the health care system and other needed supports.

In the context of current financial incentives in the US health care system — including lack of payment for coordination services and limited funding of preventive care — many communities have creatively found ways to offer coordinated care to people with multiple overlapping health and social needs. Across the nation, communities engaged in this effort have found that the crucial and foundational work is to foster an ongoing relationship with the individual at the center of his or her own care plan. This requires a relationship focused on learning about the needs of the individual, such as life and health goals; past treatment experiences and preferences; and the strengths and resources of the individual as well as the barriers they face.

Health care providers have crafted specialized supportive services to achieve the Triple Aim for populations of patients with multiple needs, often brokering effective partnerships with community-based social service providers (e.g., housing providers and others) and community supports (e.g., churches and others) to offer a person-centered, coordinated plan to support them in their own journey to improve health outcomes at dramatically lower health care and social system costs.

Over the last year and a half, teams participating in the IHI Triple Aim initiative have clarified the supports needed to provide optimum, cost-effective care to people who use a large amount of health care services. Time and again, teams have come to the realization that the needs that individuals have are not complex — they are remarkably simple, but often numerous. Typical needs may include transportation to appointments, a refrigerator for storing medications, a telephone to communicate with care providers, nourishing food, and a place to call home. Specialty care for people with diabetes, cancer, or asthma, methadone treatment, mental health treatment, and issues with food security and housing stability are not in and of themselves complex challenges; the complexity arises when the tasks of making connections among multiple care providers and linking each intervention to the individual's overall care plan fall in the lap of the individual alone without effective partnering or support. Likewise, “non-compliance,” through this lens, becomes an individual's attempt to navigate significant barriers to care put in place by the system itself. Quite simply, care coordination

reframes the complexity as one posed by the care systems, not by the individuals, and offers an elegant solution in the form of individualized, wrap-around planning and supports. When done effectively, care coordination holds the promise of helping individuals take on more and more of their own health-fostering activities over time, freeing the care coordinator to assist others.

This white paper outlines methods and opportunities to better coordinate care with people with multiple health and social needs, and reviews ways that organizations have allocated resources to better meet the range of needs in this population. There is special emphasis on the experience of care coordination with populations of people experiencing homelessness. Discussion includes measures used to track the impact of these efforts on health, costs, and experience of care. The role of strong partnerships between health care and community organizations is highlighted and innovative test ideas are included.

Background

Health care spending in the United States is highly disproportionate, with half of US health care dollars spent on five percent of the population.² Individuals with chronic conditions consume a high proportion of health care services; chronic conditions are expensive to treat and a major driver of increased health care spending.³ Teams participating in the IHI Triple Aim initiative have found that many people with chronic medical conditions struggle with multiple illnesses combined with social complexities — for example, mental health and substance abuse needs, extreme medical frailty, and a host of social needs such as social isolation and homelessness.⁴

Individuals with multiple needs are perhaps least poised to navigate the complex and fragmented health care system, yet are often left to serve as the only link among their various professional care providers. For their part, health care providers may identify individuals' many social needs but recognize that the health care system does not have capacity to meet those needs, even when an individual's life circumstances deeply impact health outcomes. Care providers recognize the need for better coordinated care that leverages community resources to align social determinants of health (i.e., housing, healthy food, and safe neighborhoods), but payment structures in the health care system remain misaligned to deliver coordinated services and connect individuals with crucial supports.

Care coordination delivers health benefits to those with multiple needs, while improving their experience of the care system and driving down overall health care (and societal) costs. Communities where health care and housing providers have partnered together have seen dramatic improvements in health, costs, and patient experience, including increased engagement in preventive care, increased management with self-care, higher self-reported health status, and dramatic decreases in individuals' health care costs.

Care coordination as outlined in this paper is similar to various other models, including patient navigators,⁵ community health workers,⁶ care managers working with elderly individuals,⁷ and transition coaches bridging care at hospital discharge.⁸ All of these models use some form of case identification and intervention to attempt to produce better outcomes. This white paper describes a model that takes into account identification and intervention in the context of a person's assets (e.g., family support, church groups, community ties, relationships with other social service providers) to produce a customized plan with individuals who have used high-cost forms of care repeatedly. The model includes feedback loops to indicate that the care planning is dynamic and fluid, as the individual and his or her care providers adjust the plan and improve it over time. Care coordination is a mechanism to assess the effectiveness of the care plan and make adjustments in order to avoid the need to deliver care in more expensive environments such as acute care facilities.

Care Coordination History

During the 1990s, health maintenance organizations (HMOs) in the US were meant to improve population health, provide good care coordination, and foster a holistic approach to care. Numerous HMOs delivered on that promise, while many others did not. Many HMOs were highly unpopular because the primary tool they used for cost reduction was denial of access to services. HMOs that did master care coordination, more sophisticated population health approaches, and good overall system design have delivered better care for less cost and have highlighted optimizing care as their goal, rather than just reducing cost. Over the past two decades, there has also been a significant improvement in understanding how to bring to scale effective, high-quality, customer-friendly population health and care coordination, and overall health care system redesign to support these.

Another example of an attempt to provide care coordination is from the Centers for Medicare & Medicaid Services (CMS). Based on successful pilot projects in the late 1990s that showed huge reductions in cost and dramatic improvement in health outcomes through aggressive case management, Medicare launched a national case management payment methodology. Large firms quickly developed with nurses calling assigned individuals to provide case management. By 2007, Medicare determined that the vast majority of these firms failed to deliver on either quality or cost parameters, and the program was essentially discontinued. Follow-up analysis has shown that the few that did succeed — and the successful pilot projects — had one key element in common: first-name, caring, personal relationships in which the case manager was an advisory friend who got to know the individual and connected with him or her at a personal level. However, the majority of systems used nurses who had no personal connection to the individual, and the calls were often characterized by those receiving them as “harassment” rather than friendly coaching and facilitation. There is much to be learned from this CMS experience.

In general, these two examples show that if the goal is to change behaviors and choices that are really under the control of the patient, then we as service professionals must get to know each individual, establish a personal, trusting relationship, and connect to motivators that are important to the person. To have impersonal people and systems connecting in impersonal ways where “compliance” and “enforcement” are the central paradigms will not succeed. Neither will systems that use denial of access to treatment as their primary intervention. **What does work is the development of a personal, trusting, long-term, supportive coaching relationship — supported by sophisticated clinical support and information management capability.**

IHI Triple Aim Workgroup and Focus on Homeless Populations

As part of the IHI Triple Aim initiative, a subset of teams formed the Socially Complex Workgroup to determine ways to identify individuals with multiple health and social needs, align care and resources to better meet these needs, and define meaningful improvement measures. In this group was the Common Ground Hospital to Home team (CGH2H), a group of eight communities across the United States all working with patients who frequently use hospital-based care and experience homelessness. CGH2H communities realized that frequent hospital use indicates that the health care and, for this group, housing systems were failing to meet these individuals’ needs, and the communities collaborated to identify effective ways of engaging patients in care. In each of the eight CGH2H communities, teams worked with a small identified group of patients, testing interventions with a focus on replicable strategies that could be brought to scale to improve the experience of care in the population, at any given time, of people experiencing homelessness. One of the CGH2H teams, the Camden Coalition of Healthcare Providers, was highlighted by Atul Gawande in *The New Yorker*, demonstrating the logic of targeting care coordination interventions to individuals who frequent hospital emergency and inpatient departments.⁹

The CGH2H team viewed experience of care as a leverage point — as ways to improve patient experience of care are learned, health care costs will be reduced by replacing high-cost crisis care with lower-cost preventive and primary care. Likewise, health will improve. We know that people experiencing homelessness have a high burden of chronic illnesses and often struggle with substance addiction and/or mental health needs, and that patients will find coordinated, holistic treatment in a medical home, not in an emergency room or inpatient unit. Permanent Supportive Housing (PSH) solves homelessness; individuals with experience of homelessness become tenants with a lease and the assistance of voluntary social support services. PSH has a proven track record, with an average 85 percent one-year retention rate,¹⁰ and among the demonstrated outcomes are decreases in health care spending; multiple studies have tracked decreases in emergency department and inpatient costs by approximately 60 percent, and overall Medicaid savings range from \$1,130 to \$17,625 per member per year (see Appendix A). Permanent housing offers a foundation for a healthy life. Housing fosters health in countless ways beyond the dignity and independence it affords; housing enables a regular

sleep schedule, provides access to home-cooked food and a refrigerator for storing medications, and offers the stability to tackle chronic health issues and to access a primary care team. As such, the CGH2H team tracked two key metrics: the number of patients reconnected to primary care, and the number welcomed back into permanent housing. In six months, the eight communities linked 631 patients to primary care and 135 to permanent housing.

Foundational Example: The Virtual Ward

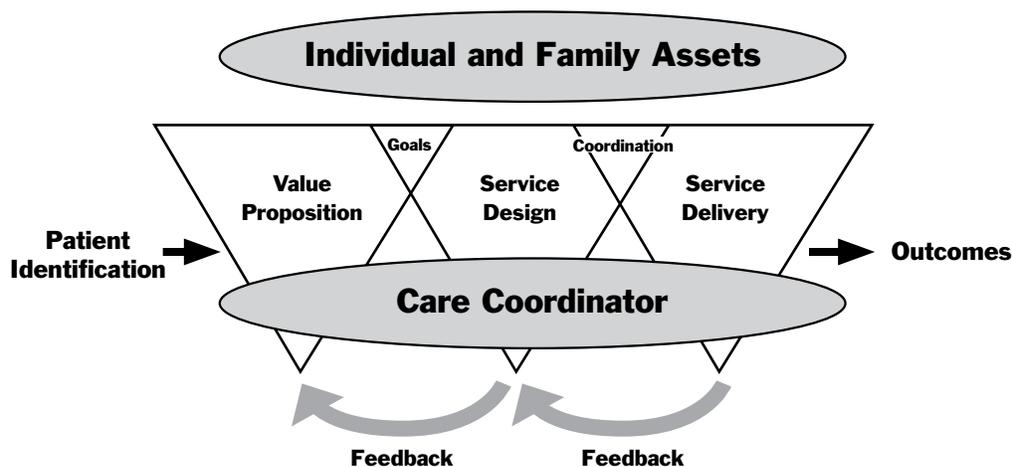
The Croydon Primary Care Trust in the UK developed a Virtual Ward model⁴⁴ in May 2006 to deploy the systems and staffing pattern of an inpatient unit to deliver home-based care to people with multiple health, behavioral health, and social needs. The IHI Triple Aim Socially Complex Workgroup viewed the Croydon work as a foundation from which to begin exploration and testing of care delivery with similar populations. Teams participating in the IHI Triple Aim initiative reviewed the Virtual Ward model to understand care design in this light: What elements of the Virtual Ward could be imported to better serve individuals and families in their care? Below is a brief outline of the Virtual Ward model.

- **Patient Identification:** Croydon used a predictive modeling tool to identify individuals with multiple, overlapping needs; a potential pool of approximately 300 people resulted from a population of about 30,000. The predictive model offers a data-driven way to identify people with multiple needs for integrated care services.
- **Program Aim:** The team works together to assist patients with complex care needs with the ultimate treatment goal of reconnecting patients back to the care of the general practitioner.
- **Key Innovation:** The multidisciplinary staff meets daily to coordinate care and calibrate services to meet patients' current needs, transferring information between the general practitioner in the community, the care team, and the patient.

IHI Care Coordination Model

IHI Senior Fellow Tom Nolan created the IHI Care Coordination Model (see Figure 1) for working with high-cost populations (i.e., high cost because these patients have multiple health and social needs) that offer the greatest opportunity for cost savings in the health care system. For large populations with low costs, this model is not an effective use of resources. It is a framework for identifying those with multiple needs and constructing coordination services to ensure that their health and life goals are met and their health is improved.

Figure 1. IHI Care Coordination Model for People with Multiple Health and Social Needs



The elements of the IHI Care Coordination Model are described in more detail below.

Individual and Family Assets

These assets comprise the resources, strengths, and gifts of individuals with multiple health and social needs (e.g., family support, church groups, community ties, relationships with other social service providers). The IHI Triple Aim initiative teams that applied the model realized that this set of strengths and resources is crucial and can be leveraged to improve individuals’ health, in addition to the assets offered by the formal service sector. Teams found that the assets are an overlay to the entire care coordination process — a set of resources available throughout the individual’s health journey.

Patient Identification

The first step is to identify those individuals who could benefit most from care coordination services. The question can be posed as: Who is failed by primary care? The question is posed this way because we can view most hospitalizations as failures of preventive primary care. A blunt assessment can be a simple scan of the most frequent users of hospital-based services — that is, individuals who visit the emergency room frequently and whose illnesses often warrant inpatient care. Frequent use is defined differently in different hospital settings; some hospitals simply focus on those who made three or more emergency room visits in the past year, while others define “frequent” as five or more emergency department visits in the past year, and still others review billed and recouped charges to identify the 10 or 20 most expensive patients.

Sophisticated predictive modeling can further identify individuals who are likely to drive high future health care costs, as distinct from those whose illnesses require acute care for a given episode. An assessment of ambulatory-sensitive admissions is another way to identify those who could benefit

from better coordinated care and can indicate inadequate access to primary care. See the Commonwealth Care Alliance method on page 9 as an example of effective identification and stratification of patients.

The Care Coordinator

Who is the care coordinator? The care coordinator is the care provider responsible for identifying an individual's health goals and coordinating services and providers to meet those goals. Given the needs of the individual, the care coordinator may be a nurse care manager, social worker, community health worker, or lay person. Regardless of the credential, the care coordinator will have expertise in self-management and patient advocacy and will be adept at navigating complex systems and communicating with a range of people, from family members to doctors and specialists. It is the responsibility of this care coordinator to identify life and health goals with the individual and to coordinate services and community supports to work with the individual toward better health outcomes. All the while, the care coordinator keeps a current understanding of the strengths and gifts that the individual and family bring (their "assets").

At its essence, the care coordinator is the person responsible for ensuring that the care plan is carried out in partnership with the person at the center of the care plan. This begins with conversations between the care coordinator and the individual about life goals, health goals, and how they interact. These conversations are inherently non-judgmental, as the care coordinator takes an open, learning stance to understand the individual's life context, struggles, and gifts. The care coordinator has ultimate responsibility for ensuring that the care plan is delivered as described and for incorporating new knowledge to keep the care plan fresh and relevant. With each individual, the care coordinator monitors how well the service design and coordination are working; the feedback loops (depicted by the curved arrows) represent the monitoring process and indicate that the care coordination is iterative. As the care coordinator and individual learn more about what promotes and what gets in the way of improved health, they are able to modify the care plan to meet the individual's emerging strengths and needs.

The Care Coordinator's Role: Value Proposition, Service Design, and Service Delivery

The care coordinator has a role in value proposition, service design, and service delivery.

- **Value proposition:** The care coordinator outlines the exhaustive list of services that the team can provide, including those the team can refer the individual to, and those that can work in tandem with the individual's own resources.
- **Service design:** First, the care coordinator defines the components of the individual's chosen services. Next, the care coordinator identifies opportunities for coordination among those involved in the service plan, highlighting each person's responsibilities.
- **Service delivery:** The care coordinator ensures that services are delivered as outlined in the service plan, and ensures collaboration among all involved. Over time, the care coordinator assesses

and reassesses the plan’s efficacy with the individual, identifying new coordination methods and service preferences to meet the individual’s emerging strengths, needs, and goals.

Throughout the individual’s health journey, the care coordinator draws on the individual’s assets by incorporating the unique strengths of the individual and the resources to which he or she has access.

Identifying the Care Coordinator

Many IHI Triple Aim initiative teams have identified those with multiple needs in their own settings. Although teams found detailed segmentation among those with multiple needs to be of limited use, three groups emerged (see Table 1) as helpful in determining the skill set of the care coordinator, who is simply the care provider responsible for identifying health goals and coordinating services and providers to meet those goals.

Table 1. Matching the Individual’s Needs and the Care Coordinator’s Skill Set

Individual’s Most Prominent Needs	Care Coordinator’s Skill Set
Mental health	Social worker
Medical frailty or complexity	Nurse
Social instability or lack of social support	Social worker or community health worker

A caveat about the grouping above: People with multiple needs often struggle with needs in all three areas. However, the framework can help determine the individual’s most prominent need and partner the individual with a care manager who has expertise in that area, when staff capacity is available to do so.

The Care Coordinator Role at Its Most Effective

IHI Triple Aim initiative teams deemed that the best coordination model is one in which a patient experiences primary care as delivered by an integrated, multidisciplinary team that includes at least one care coordinator staff person. Examples of models at two Triple Aim initiative sites are shown in Table 2. For instance, SouthCentral Foundation’s model is anchored by a nurse care coordinator, who works closely with the primary care physician and the behaviorist to provide optimal targeted case management in response to specific issues the individual and family have. People who are most medically fragile are followed closely by the care coordinator, while those with mild behavioral needs or a thin social fabric work closely with the behaviorist. All individuals have a care plan that the primary care physician co-creates with the individual and family.

The care teams, at their best, are either based in the community or at least respond to the specific circumstances of the individual and family, working in close partnership with social services and community supports at the behest of the individual and family at the center of the care plan. Further, Triple Aim teams identified that the goal of the integrated, community-based team is to help the individual develop more self-care skills to fulfill their own care needs and promote their health, calling on the integrated care team only when needed.

Table 2. Care Coordination Models at Two IHI Triple Aim Initiative Sites

Organization	Population Served	Care Coordinator Skill Set	Services Offered
SouthCentral Foundation Anchorage, AK	Alaska Native People	Nurse with support from Case Management, Behaviorist, Elder Worker, others	Integrated care team includes: <ul style="list-style-type: none"> • Customer-selected doctor • One or two medical assistants • Behaviorist • Full-time nurse providing care coordination • Administrative assistant providing case management support • Specialists and ancillary providers
CareOregon Portland, OR	High-risk Medicaid and Dual Eligible Members	Case management teams comprising Registered Nurse, Behaviorist, and Health Care Guide (depending on the nature of the member's challenges, one staff person will be primary) Caseloads: Range from 50 to 85 members at any given time	<ul style="list-style-type: none"> • Service coordination between direct care providers • Ensuring appropriate and timely access to services, pharmaceuticals, and durable medical equipment • Teaching, coaching, and skill building related to chronic and acute health conditions, including mental health • Promoting an optimal primary care home relationship

Example: Commonwealth Care Alliance Stratification Method for Care Coordination

Commonwealth Care Alliance (CCA) is a nonprofit, statewide Massachusetts prepaid comprehensive care system — an accountable care organization (ACO) providing a primary care medical home. CCA serves individuals with Medicaid and dual eligibility (Medicaid and Medicare) with chronic illnesses and disabilities. An effective hybrid of care delivery and payer roles, CCA is able to place enhanced financial resources towards primary care and hospital alternative services that are more than offset by savings from reduced hospital and institutional care.

CCA poses the following two questions: Is primary care working for individuals? If not, to what degree is it failing? To determine who among its high-need member base are the best candidates for supportive case management services, CCA first determines the total per member per year spend of

the CCA population and allocates 6 to 7 percent of this spend as the “enhancement budget.” Then, CCA reviews administrative data (transactional, electronic medical record, and clinician assessment) to stratify the CCA population into three groups: Tier One, Tier Two, and Tier Three.

- Tier One individuals enjoy reasonably effective primary care, as evidenced by reasonably good HEDIS measures, primary care visits that outnumber emergency room visits, and few hospital contacts for complications or ambulatory-sensitive conditions.
- Tier Two individuals have somewhat effective primary care with significant support from the primary care team, as evidenced by reasonably frequent primary care visits alongside avoidable emergency room visits, excessive hospital use, and suboptimal HEDIS measures.
- Tier Three individuals do not have an effective primary care partnership, as evidenced by emergency room visits that outnumber primary care visits, poor HEDIS measures, multiple hospital contacts for ambulatory-sensitive conditions or complications, and multiple uncoordinated system contacts. **Tier Three individuals are key candidates for care coordination services.** Tier 3 patients represent 15 to 20 percent of the CCA population and account for 60 percent of CCA expenses.

It is critical that the primary care approach begins from a starting point that recognizes that deficits in primary care functions have contributed to the poor health outcomes, high cost, and poor experience of care in these groups. CCA has observed that robust primary care includes:

- The ability to perform comprehensive assessments and develop, implement, and monitor individualized care plans;
- The ability to have a meaningful 24/7 clinical assessment capability;
- The ability to have a meaningful episodic and urgent care capability, including clinical assessment and management capability; and
- The ability to manage and/or direct care decisions during hospitalizations, or when short-term post-hospital care is needed.

Applying the IHI Triple Aim to People Experiencing Homelessness

In 2009, Common Ground, a national nonprofit organization aimed at ending homelessness, convened a network of communities (the aforementioned CGH2H team) interested in applying the IHI Triple Aim to better meet the multiple needs of people experiencing homelessness. In each community, partnerships formed between providers of health care (hospital frequent-use initiatives, integrated care management programs) and social services (Permanent Supportive Housing providers, street outreach teams). These coalitions took different forms in each community, but all focused on addressing as many social determinants of health as possible in the service of improving health outcomes while decreasing overall health care costs. Health care and housing are

two important determinants of health, alongside various other social determinants: food security, social support, employment, transportation, physical environment, and health behaviors. There are diverse and varied resources in the community that impact the social determinants of health that can be leveraged alongside housing and health care to promote health and wellness.

People experiencing homelessness provide a particularly ripe opportunity for care coordination, as they tend to have limited access to primary care and often rely on emergency rooms for their health care. Further, people experiencing homelessness remain in inpatient care on average four days longer than people who have housing, as hospitals search for safe discharge options for those with no place to return.¹² Hospital frequent-use initiatives often target their improvement efforts at the same people that street outreach, transitional housing, and permanent housing providers work to engage.

In July 2010, Common Ground, along with many national partners, launched the 100,000 Homes Campaign to bring together change agents across the country to end chronic homelessness (defined by an individual's duration of street- or shelter-based homelessness for one year or more) within three years. To date, 76 communities have joined the campaign and have collectively welcomed over 7,700 people back into permanent housing, providing a foundation for a healthy life. As part of this work, communities are able to develop a detailed registry of people living on the streets or in shelters; aggregated information provides an emerging picture of the experience of homelessness and the illness burden they carry.¹³ To date, over 16,500 individuals have agreed to allow their information to be included in a database. Among them, 45 percent have at least one known serious health condition, 45 percent have a mental health condition, 57 percent have a substance abuse condition, and 22 percent live with all three conditions. Fully 19 percent of the 16,516 people in the database report frequent use of hospitals — an overlap of 3,138 people. The average duration of homelessness is nearly six years — well above the threshold in the chronic homelessness definition. Fewer than 17 percent of the individuals report Medicaid insurance coverage; community-level studies have demonstrated that nearly 100 percent are Medicaid-eligible, even under comparatively strict state plans.

Many communities participating in the 100,000 Homes Campaign are innovators in care coordination for people experiencing homelessness and living with multiple health, mental health, and substance abuse conditions. The 100,000 Homes Campaign has developed tools to help care coordinators with this work.^{14,15}

Four communities participating in the 100,000 Homes Campaign are highlighted in Table 3; each of them has identified funding — some of it sustainable, some of it reliant on grants — to provide the coordination services that enable very vulnerable people to manage their multiple needs and improve their health. In each of these programs, the role of the care coordinator is carried out by a person (or people) with a skill set that fits the needs of the individuals served (see Table 1).

Three of the programs are explained more fully in the examples following Table 3, which summarizes who serves as the care coordinator, how the program provides a medical home and housing, and the funding for care coordination services.

Table 3. Four Community Care Coordination Programs in the 100,000 Homes Campaign

Community and Program	Care Coordinator Skill Set and Caseload	Medical Home	Housing	Funding for the Care Coordinator
Central City Concern's Recuperative Care Program Portland, OR	Care Coordinator is a Master of Social Work or Emergency Medical Technician working within an integrated team that includes a physician, housing specialist, logistics coordinator, and a full-time volunteer Caseload ratio: 1:25	Old Town Clinic, a Federally Qualified Health Center (FQHC)	~ 30-day respite with connection to Permanent Supportive Housing	Local hospitals, CareOregon, and City of Portland Housing Bureau
Pathways to Housing Philadelphia, PA	Registered Nurse is the Care Coordinator working within a multidisciplinary Assertive Community Treatment (ACT) team Caseload ratio: 1:10	On-site physician from local university hospital	Permanent Supportive Housing	ACT: Medicaid Physician: Grant
BronxWorks Homeless Outreach Team Bronx, NY	Hospital Homeless Care Coordinator is a Licensed Master of Social Work Caseload ratio: 1:15	Finding Federally Qualified Health Centers (FQHCs) in the community	Transitional and Permanent Supportive Housing	Local Department of Homeless Services
Hospital to Home New York, NY	Community-Based Care Manager is a Community Health Worker or Bachelor of Social Work Caseload ratio: 1:25	Integrated primary care team	Link to transitional and Permanent Supportive Housing	New York State Department of Health grant

Individual Stories and Program-Level Examples

Example 1: Portland, Oregon

In Portland, Oregon, referring hospitals and health care organizations are faced with serving patients who are medically ready for discharge, but are held unnecessarily or return immediately to the emergency department because of social barriers, lack of primary care or insurance, and especially homelessness. With more than 700 referrals since it began in 2005, Central City Concern's Recuperative Care Program (RCP) provides immediate housing, intensive case management, and a primary care home with immediate post-hospital follow-up to patients who are medically ready to leave the hospital, but have ongoing recuperation needs and are experiencing homelessness.

RCP case management staff meet patients in the hospital to discuss enrolling in the 30-day program; if the individual agrees, RCP staff coordinate a discharge plan with the hospital and accompany the patient to the RCP. RCP welcomes each individual into their own room and immediately establishes a connection with a primary care provider and a multidisciplinary case management team. At RCP, individuals all have a prominent medical need requiring respite care and all are homeless. The team is composed of a lead case manager with a social work or emergency medical technician background, an internist, social work interns, and a full-time volunteer. RCP has found that the services are varied enough that the role of the care coordinator is accomplished most effectively by convening weekly team meetings to coordinate care.

The IHI Triple Aim is realized in multiple transformations: the patient's experience of health care, the cost for the population, and, most importantly, improved clinical outcomes. RCP currently has a successful discharge rate (defined as full recovery and completion of care) of 74 percent; the percentage discharged to stable housing is 61 percent. CareOregon, a Medicaid Managed Care Program that refers patients to RCP, has tracked dramatic cost savings by high-utilization patients with multiple chronic illnesses and acute care needs.

Example 2: New York City

In New York City, the Health and Hospitals Corporation was awarded a three-year contract to work with the New York State Department of Health to find and voluntarily enroll individuals who are predicted to be high-cost patients (based on the previous three years of Medicaid data) in a comprehensive care coordination and management intervention called Hospital to Home (H2H). Individuals who join the program address their multiple health, social service, and concrete needs, including housing, with the help of a Care Management Team. The team comprises a designated primary care doctor, social worker, Community-Based Care Managers (CBCMs), social work supervisors, and a housing placement specialist. The CBCM may have a bachelor's degree in social work or experience in community health; all CBCMs have abilities in engaging individuals, communicating effectively with diverse groups, and advocating for care.

Example 3: Philadelphia

In Philadelphia, Thomas Jefferson University Department of Family and Community Medicine has embedded a primary care doctor within a Housing First Assertive Community Treatment (ACT) team to form an onsite integrated health care program within Permanent Supportive Housing. ACT teams are designed to meet the needs of people with psychiatric disabilities, providing the support necessary to thrive in the community. ACT teams include social workers, a nurse, a psychiatrist, and peer staff who provide support to a panel of individuals in an integrated way. In Philadelphia, program staff work with individuals newly placed in Permanent Supportive Housing to address primary care and preventive issues, provide self-management support and goal planning, and coordinate specialty care and acute care transitions. The ACT team nurse serves as the care coordinator, identifying health and life goals with individuals and taking the lead role in coordinating care.

Example 4: Individual Patient Experience

To better understand care coordination, we will briefly illustrate an individual patient's experience and apply the Care Coordination Model to her experience. The patient is a participant in the New York City Hospital to Home (H2H) program; we will call her Mary. She lives with very complex circumstances and has a myriad of health, mental health, substance abuse, and social needs. Mary, like many individuals who struggle to access services in the complex and fragmented health care system, has multiple medical, social, and mental health needs. She is in her early 40s and completed the 7th grade, is fluent in English and Spanish, and has a work history spanning a decade, with experience bartending and as a grocery store clerk. She shared with the Care Management Team (CMT), in small pieces, a life story interwoven with traumatic events beginning with repeated childhood sexual abuse and a series of incarcerations related to aggression and drug use, most recently in August 2008. Her apartment was destroyed by fire in May 2007; since then she has lived in the New York City homeless shelter system, with little communication with her sister or her own children.

The H2H program sends invitation letters to individuals who have fee-for-service Medicaid and who were identified by a predictive algorithm as potential very high users of Medicaid based on use of hospital-based services in the previous three years. Mary's name was generated by the predictive algorithm and in August 2009 she received an invitation letter explaining the H2H services and inviting her to join the program.

Mary shared the invitation letter with her counselor at the Methadone Maintenance Treatment Program (MMTP), which she attends six days per week. After calling H2H for more information about the program, Mary visited the H2H program for an initial appointment. She was enrolled in the program in the last week of August 2009, stating her goals were to be able to walk (she struggled with a swollen ankle and knee issues and ambulates with a cane or walker and sometimes uses a wheelchair) and to move out of the shelter.

In the first few weeks of working with Mary, the CMT became aware of her many strengths: she has a good rapport with her MMTP counselor, access to shelter, a work history, and current steady income through Social Security Disability Insurance, along with insight into her life trauma, her health needs, and the links between them.

Her health diagnoses include: 1) chronic health issues (Type 1 diabetes, arthritis, hepatitis B, chronic bronchitis, and asthma); 2) acute illnesses (pneumonia, pain, cellulitis, and obesity); and 3) mental health and substance abuse diagnoses (adjustment disorder with depressed mood, Cluster B traits, and cocaine dependence). Her first psychiatric hospitalization was at age 14, and she was most recently hospitalized over ten years ago in 1997.

H2H offers a myriad of services: primary care, motivational interviewing, supportive counseling, assistance in accessing specialty care, links to mental health treatment, support in addressing substance abuse, health education, food and nutrition support, housing placement assistance, provision of personal cell phones, and access to transportation. The CMT team decided with Mary that the first services she would participate in were primary and specialty care, concrete supports including access to transportation and a new cell phone, supportive counseling, and housing placement support. Mary's CBCM ensures that all of these services are delivered: arranging referrals, calling Mary to remind her of appointments, preparing her for discussions with medical professionals, and exploring with her motivation to improve her health. Mary has struggled with a tenuous and sometimes adversarial relationship with shelter staff, and the CBCM and housing placement specialist have advocated on Mary's behalf; the CBCM has also worked closely with the MMTP counselor with whom Mary has a rapport.

In the four months following her enrollment in H2H, Mary was hospitalized three times for pneumonia; each time, her primary care physician was able to coordinate her inpatient care and help direct the discharge plan. Mary's CBCM visited her often and offered support to inpatient medical professionals, who found her difficult to interact with, and was able to ease the inpatient staff's and Mary's concerns. One of the inpatient stays was precipitated by Mary's visit to the Asthma Maintenance Clinic; Mary was screened by medical professionals, left the office after her visit, and within an hour the results were in: traces of pneumonia in her lungs. The Asthma Maintenance Clinic staff called Mary on her personal cell phone, provided by H2H, and she followed their instructions and returned to the hospital to be admitted for care. Other early outcomes include her use of a primary care physician and Asthma Maintenance Clinic, connection to the CMT, and links to outpatient psychiatric care and housing placement support. Mary has also regained contact with her children and moved into her own apartment.

The Crucial Role of System-Level Integration

The examples above demonstrate effective ways of coordinating care across sectors: housing and health care, and specialties within health, mental health, and substance abuse care. Collectively, these communities learned that effective care coordination relies on integration at the system level. Communities that have the most success in coordination efforts have skilled care managers implementing individual-level interventions as well as effective leadership aligning key stakeholders of multiple systems (e.g., county public health department, state mental health office, hospital administration, housing nonprofit leadership).

The development of memoranda of understanding and linkage agreements ensure opportunities to share confidential health information with individuals' agreement. Because coordination efforts hinge on the ability to access information in real time, the care coordination team and care coordinator must be adept at communicating with a wide array of people, reaching individuals, their families, and their specialty care providers. A common and effective intervention is a simple monthly case conference that can ensure well-coordinated care with an individual, form lasting partnerships among service providers, and integrate fragmented systems.

Policy Context

Many of the care coordination examples in this white paper rely on strong partnerships between health care providers and social service and housing organizations. The Affordable Care Act will likely encourage cross-sector partnerships in various ways and offer more opportunities to vulnerable people to live well in their communities, as Medicaid coverage will extend to 16 million more people in 2014. Specific provisions in the law that encourage cross-sector collaboration include Medicaid Health Homes, which could enable health care providers to fund essential care coordination services. There are other state options that could potentially provide a funding source for supportive services in housing, including Community First Choice and Home and Community-Based Care. Accountable care organizations are being defined and may offer opportunities for community-based care providers to partner with hospitals and primary care providers to work toward improved health of a specific population. These initiatives have implications for community-based care providers, even those outside of health care, as the Centers for Medicare and Medicaid Services draft requirements for community integration across sectors and encourage collaborative ways to support people with multiple needs in the community.

Other opportunities exist for partnering with nonprofit hospitals, which are now required by the Internal Revenue Service to complete a community needs assessment before allocating their community benefit dollars to meet those needs. Community-based partnerships can drive those community needs assessments and could lead to hospital funds for care coordination services.

Measuring the Impact of Changes

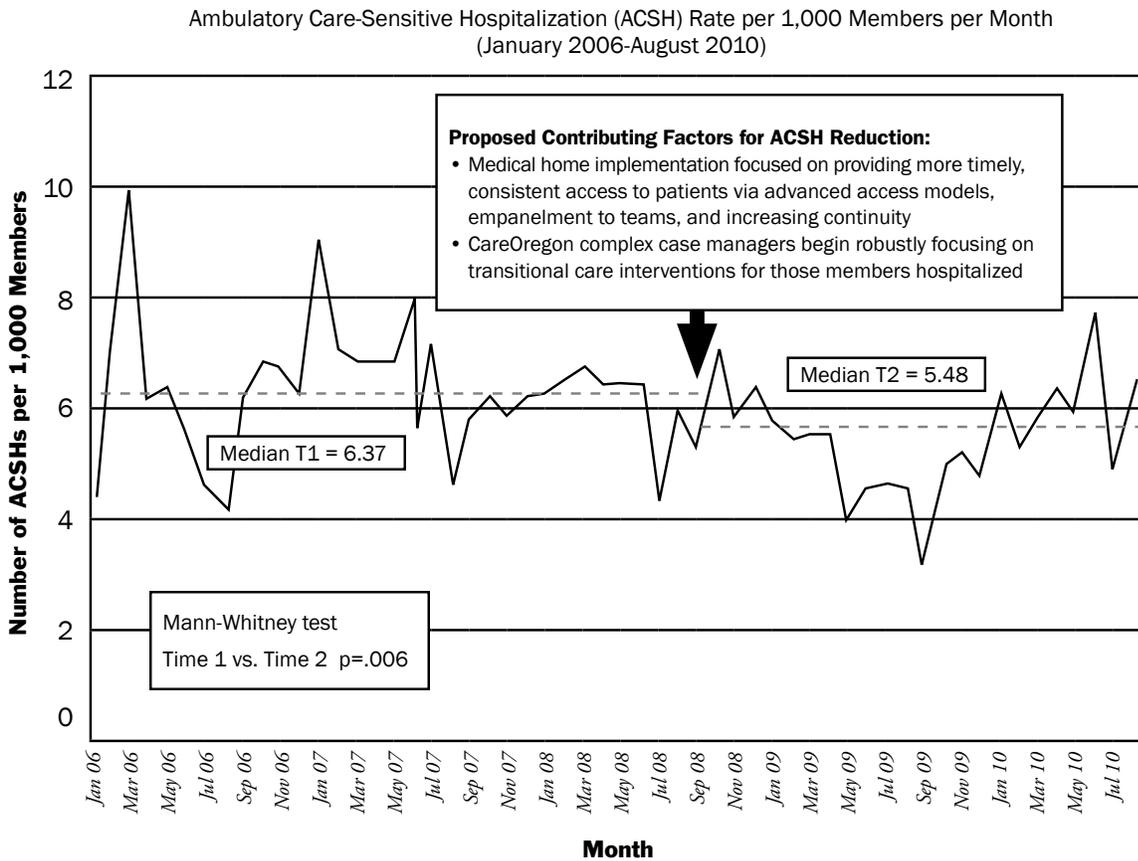
The IHI Triple Aim suggests that a balanced set of high-level measures for a population includes those that track improvements in the health of a population, individual experience of care, and per capita cost. Table 4 provides a list of potential measures that organizations can use to track impact.

Table 4. Measures of Health, Cost, and Experience of Care

Element of the IHI Triple Aim	Potential Measures
Health of a Population	Behavioral Risk Factor Surveillance System (BRFSS)
	12-Item Short Form Health Survey (SF-12)
	Healthcare Effectiveness Data and Information Set (HEDIS)
	Social isolation
	Number of outpatient visits (as a measure of access)
Individual Experience of Care	Site-specific experience of care survey
	How's Your Health survey items
	Ambulatory Care-Sensitive Hospitalization (ACSH)
Per Capita Cost	Number of ED visits, readmissions, inpatient days, behavioral health admissions
	Hospital-based costs (ED, inpatient, detoxification)
	Total cost per member per month (PMPM)

Figure 2 shows how the data changed in one care coordination program; it is a run chart showing the ambulatory care-sensitive hospitalization (ACSH) rate for a population of dual eligible (Medicare and Medicaid) CareOregon members (with a 29 percent prevalence of severe, persistent mental illness). (ACSHs are hospitalizations that would be avoided with primary care interventions.) The total population is approximately 6,200 members. The data translates to a statistically significant reduction in the median ACSH rate of one ACSH per 1,000 members per month. With 6,200 members, if CareOregon is able to sustain the change, the total reduction would amount to approximately 72 fewer ACSHs per year. This is a cost savings of \$1,000,000, given that the average hospitalization for a dual eligible CareOregon member was \$14,000 in 2009.

Figure 2. Dual Eligible CareOregon Members Hospitalized for an Ambulatory Care-Sensitive Condition



CareOregon implemented work on the medical home and complex case management in 2008. They understand that these two processes have helped make the change, but obviously that cannot be known for certain. This complex case management model is a great example of the care coordination described in this white paper.

Opportunities to Learn More: Tests to Try in Your Organization

- Identify the care coordinator in your organization.
- Identify leaders (e.g., program directors in housing organizations, directors of care management, or frequent-use initiatives in hospitals) who can broker high-level partnerships that bridge local government, social service providers, housing organizations, and hospitals.
- Bring together hospital inpatient and emergency room staff, outpatient care providers, and housing providers in monthly case presentation meetings to identify duplication in services, leverage resources, coordinate care and outreach efforts, and share aggregate outcome data.
- Identify five people with multiple health and social needs to target for care coordination services this month. With each person, design services by first defining the person's health and life goals, and then identify opportunities to coordinate care and adjust the care plan.
- Identify three impact measures to track, one for each element of the IHI Triple Aim: health, cost, and experience of care (see Table 4).

Recommendations for Further Work

- Examine all potential funding streams to support care coordination services.
 - How will health care reform impact funding streams?
 - How can cost savings be tracked?
 - What happens when costs are avoided, rather than saved, by a given health care system (e.g., the hospital)?
- How can care coordination highlight the role of the individual in designing his or her care plan and elevate the individual's voice to inform program design?
- How can care teams determine when to discharge or disenroll an individual from care coordination services?
- How can teams isolate the impact of care coordination services on health, costs, and experience of care?

Conclusion

Collaborating with individuals with multiple health and social needs will help us to reshape the entire health care system, with benefits gained by all — not just those experiencing vulnerability. As health care costs decline and individuals stabilize their health and reestablish their roles in the community, all of us benefit as our most vulnerable neighbors regain participatory roles in community life.

People with social needs, chronic illnesses, mental health issues, and substance-related needs do not pose complex challenges to those systems. Rather, they bring a host of simple needs and often-untapped skills and assets. The health care and social service systems are better designed to meet isolated needs than to foster independence, resilience, and good health, and are unnecessarily complex. When the care system offers individuals a genuine opportunity to gain ongoing support through a partnering relationship with a team member dedicated to aligning a diverse care plan with the individual's own health and life goals, drawing on their assets and fostering their self-care skill development, the care system can be an integral part of the individual's health journey. Multidisciplinary, multi-agency collaboration at all levels is key to successful integration efforts with people with multiple overlapping health and social needs. An operating framework can be the social determinants of health: how many social determinants can the integrated, cross-sector team address? What does the individual deem to be the most crucial starting point?

Perhaps a “medical home” is little more than the ability to create a coherent care plan around an individual, aligning crucial supports to enable meaningful engagement in health-promoting treatments and activities. With small caseload sizes, care coordinators can consistently assess individuals' emerging strengths and needs, ramping up support at critical times and cultivating self-management and targeted use of the care system to foster good health outcomes at lower costs.

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Appendix A: Literature Review: Permanent Supportive Housing Decreases Medicaid Costs

These studies have tracked reductions in Medicaid costs after homeless individuals are placed in Permanent Supportive Housing.

Arthur Anderson, LLP, as commissioned by Corporation for Supportive Housing. *Connecticut Supportive Housing Demonstration Program Evaluation Report*. 2001.

An evaluation of a Connecticut Permanent Supportive Housing demonstration program found that homeless and at-risk individuals decreased their use of inpatient care by 71% in the three years after housing placement (as compared to the two years before housing), while increasing their use of outpatient medical care and substance abuse and mental health treatment.

Corporation for Supportive Housing with The California Endowment and the California HealthCare Foundation. *Frequent Users of Health Services Initiative Summary Report of Evaluation Findings: A Dollars and Sense Strategy to Reducing Frequent Use of Hospital Services*. 2008.

The Initiative targeted housing and case management services to frequent users of hospitals and realized in the two years following housing placement, compared to the year prior to housing: a 61% decrease in emergency department visits, a 59% decrease in emergency department costs, 64% decrease in inpatient admissions and 62% decrease in inpatient days for a total inpatient savings of 69%.

Culhane DP, Metraux S, Hadley T. Public service reductions associated with placement of homeless persons with severe mental illness in supportive housing. *Housing Policy Debate*. 2002;13(1):107-163.

Data on 4,679 homeless people with severe mental disorders placed in supportive housing showed marked reductions in shelter use, hospitalizations (regardless of type), length of stay per hospitalization, and time incarcerated. Authors demonstrated a public cost reduction of \$16,281 per housing unit per year across multiple service sectors, with a total reduction in Medicaid spending of \$1,130 per person per year even accounting for the uptick in outpatient care costs.

Kaye N, Harris Sharman C, Rosenthal J. *Chronic Homelessness and High Users of Health Services: Report from a Meeting to Explore a Strategy for Reducing Medicaid Spending while Improving Care*. National Academy for State Health Policy; 2008.

This literature summary catalogues a host of Medicaid cost reductions across three states. In San Francisco, homeless individuals moved into permanent housing in through Direct Access to Housing and experienced a 58% reduction in emergency department use, 57% fewer inpatient hospitalizations than in the first two years of housing in previous housing placement, and a decreased average length of inpatient stay. After placement in Pathways to Housing in New York City, frequent users

of psychiatric inpatient care showed a 92% reduction in the average number of days in psychiatric hospital from 327 to 27 days. In Chicago, researchers compared homeless individuals with HIV who were enrolled in the Housing or Health Partnership (CHHP) to a control group that received usual care. Individuals placed in housing made 65% less emergency room visits, spent 70.45% less days in nursing home care, and were hospitalized less than the control group.

Larimer ME, Malone DK, Garner MD, Atkins DC, Burlingham B, Lonczak HS, Tanzer K, Ginzler J, Clifasefi SL, Hobson WG, Marlatt GA. Health care and public service costs before and after provision of housing for chronically homeless persons with severe alcohol problems. *Journal of the American Medical Association*. 2009;301(13):1349-1357.

In Seattle, chronically homeless individuals with severe alcohol problems were placed in housing and allowed to continue drinking alcohol. After housing placement, Medicaid costs decreased by 41%, including outpatient and inpatient care and emergency room visits.

Martinez TE, Burt MR. Impact of supportive housing on the use of acute care health services by homeless adults. *Psychiatric Services*. 2006;57(7):992-999.

This analysis examined the impact of Permanent Supportive Housing on the use of acute care public health services by 236 homeless people with mental illness, substance use disorder, and other disabilities. Housing placement significantly reduced the percentage of residents with an emergency department visit (53% to 37%), the average number of visits per person (1.94 to 0.86), the total number of emergency department visits (56% decrease, from 457 to 202), the likelihood of being hospitalized (19% to 11%) and the mean number of admissions per person (0.34 to 0.19 admissions per resident).

Massachusetts Housing and Shelter Alliance. *Home and Healthy for Good: A Statewide Housing First Program Progress Report*. 2009.

A statewide pilot program placed chronically homeless individuals in housing and reported a 67.5% decrease in average annual Medicaid costs, from \$26,124.36 per year before housing to \$8,499.84 Medicaid costs after housing. Authors cite the cost of Housing First at \$8,691.

Mondello M, Gass A, McLaughlin T, Shore N. *Cost of Homelessness: Cost Analysis of Permanent Supportive Housing*. Corporation for Supportive Housing/Maine Department of Health and Human Services; 2007.

Permanent Supportive Housing in Maine delivered manifold Medicaid savings in the year after housing placement as compared to the year before placement: emergency room costs decreased by 62%, ambulance costs decreased by 66%, and mental health care costs decreased by 41% even though formerly homeless individuals participated in 35% more mental health services after housing placement.

Sadowski LS, Kee RA, VanderWeele TJ, Buchanan D. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults. *Journal of the American Medical Association*. 2009;301(17):1771-1778.

Authors compared the effects of housing placement with case management to usual care and found reductions in use of inpatient and emergency department care. Individuals placed in housing spent 2.7 days less in inpatient care per year, with small reductions in inpatient admissions and emergency department visits as well.

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