

Strategies to Reduce Costs and Improve Care for High-Utilizing Medicaid Patients: Reflections on Pioneering Programs

By Thomas Bodenheimer MD, University of California, San Francisco

OCTOBER 2013

Foreword

Across the country, Medicaid stakeholders are exploring new ways to address the needs of Medicaid's highest-utilizing patients. Super-utilizers make up only five percent of the Medicaid universe, yet these patients with complex needs account for more than 50 percent of overall program spending.

Thomas Bodenheimer, MD, MPH at the University of California San Francisco recently undertook a review of super-utilizer programs nationally to help guide the San Francisco Health Plan in designing better ways to care for high-risk, hard-to-reach patients. His examination of 14 high-utilizer programs uncovered valuable insights for states, health plans, and providers looking to improve care delivery for Medicaid's sickest, costliest patients.

Three of the programs identified for this analysis – the **Camden Coalition, CareOregon, and Hennepin Health** -- are participants in the Center for Health Care Strategies' (CHCS) Complex Care Innovation Lab. This national initiative made possible by Kaiser Permanente Community Benefit is working with pioneering programs across the country to design and spread better ways to care for the highest-need, highest-cost populations in publicly financed care. We are pleased to share the findings from this analysis to add to the emerging body of evidence on the need for high-touch, highly tailored approaches for individuals with complex needs.

Allison Hamblin, MSPH
Center for Health Care Strategies, Inc.

Much is known about reducing costs for elderly Medicare patients,¹ but less information is available for Medicaid-only recipients. In contrast with Medicare high-utilizing patients who generally have multiple physical chronic conditions, high-utilizing Medicaid-only patients usually have a combination of physical and mental conditions, sometimes complicated by substance abuse and homelessness. Programs for Medicare may not work for the very different Medicaid population.

This brief reports on findings from a review of 14 programs for high-utilizing, complex patients, with a primary focus on Medicaid. The information herein should be considered preliminary – an exploration. More work must be done to pinpoint precisely what is needed to improve care and reduce costs for Medicaid beneficiaries. The programs described here were recommended by experts in Medicaid policy or by people knowledgeable about ways to reduce costs for super-utilizing patient subsets. While the majority of the programs chosen for this review involve Medicaid patients, some programs for employed individuals and Medicare offer potential relevance to the Medicaid population and are included. The programs examined constitute only a small segment of the universe of attempts to control the costs of complex, high-utilizing patients.

The brief's first section attempts to categorize the various types of high-utilizer programs and includes a table outlining the core features of the 14 programs reviewed (see the appendix on pages 9-22 for a full description of each). While the programs are distinct from one another, virtually all are a mixture of different models of care. The second section details 10 key factors that emerged as themes for success across the reviewed programs. Although this is a preliminary snapshot, these success factors warrant attention and potential replication. The third section explores the tangible success of the programs reviewed through a look at cost and utilization data.

The Models: An Overview

Complex care management programs can be categorized using different criteria. One side of the spectrum consists of medical interventions with registered nurses (RNs) leading the care management team while the opposite pole features case management and navigation rather than medical care, with social workers as leaders. Most programs lie between these extremes, incorporating elements of both. Another dimension is to classify the programs based on the principal site of the program. While this brief uses the latter classification, there are merits for considering the former. The models listed here never exist in pure form; all programs are hybrids of more than one model.

1. **Health Plan Model.** The health plan employs a care management team that operates from the health plan; usually the care management is mostly telephonic.
2. **Primary Care Model.** The care management team is embedded in one or more primary care practices. The team could be employed by a health plan or a provider organization, but its location is a primary care site.
3. **aICU (ambulatory intensive caring unit) Model.** High-utilizing, complex patients receive all their care from a separate high-risk clinic or a high-risk team within a clinic. They no longer receive care from a primary care provider who sees both complex and non-complex patients. The entire attention of the high-risk clinic/team is focused on a small panel of high-utilizing patients.
4. **Hospital Discharge Model.** This model focuses on intensive care management during the transition from inpatient to home and to primary care. Ideally, patients in this model continue care management in one of the other models once the transition from inpatient is completed.
5. **Emergency Department-Based Model.** Patients are recruited in the emergency department (ED) and an ED-related team provides care management.
6. **Home-Based Model.** This model is for patients unable to leave the home, or for whom leaving the home is difficult. Care management takes place entirely in the patient's home. For homeless or precariously housed patients the care goes to wherever the patient is.
7. **Housing First Model.** High-utilizing patients who are homeless or precariously housed are provided with stable housing, without a medical care component. In some cases, case managers are available at the housing sites to assist with social services.
8. **Community-Based Model.** The care management team engages patients wherever the patients are located.

Table 1: Summary of High-Utilizing Programs

PROGRAM	POPULATION	KEY CARE MANAGEMENT ELEMENTS
California Frequent Users Initiative Santa Clara County, Silicon Valley Health Coalition	<ul style="list-style-type: none"> ▪ 8+ ED visits in 12 months 	<ul style="list-style-type: none"> ▪ Case managers with office space at each hospital, not co-located in ED. ▪ Access to vouchers for permanent housing through partnerships with housing agency. ▪ Incentives to enhance recruitment: phone cards, grocery vouchers, bus tokens, transportation assistance and home visits. ▪ Direct access to a psychiatrist for medication management, disability assessments, and consultation.
Community Care of North Carolina NC Dept of Health and Human Services	<ul style="list-style-type: none"> ▪ Almost all Medicaid patients in North Carolina 	<ul style="list-style-type: none"> ▪ Risk-stratifies by severity of illness/past utilization, with higher-risk patients receiving more intense care management. ▪ Care managers are embedded in large-volume hospitals to coordinate discharges. ▪ 14 regional networks have care management teams, led by RNs, who visit practices in their region. Teams include RNs, social workers, a pharmacist, a psychiatrist, and non-licensed staff for outreach and patient education. ▪ Care managers have telephone, home visit, and face-to-face clinic encounters with patients for medication management, reminders, navigation. Care managers refer patients to community agencies such as DSS, mental health, and school nurses.
Geriatric Resources for Assessment and Care of Elders (GRACE) Wishard Health Services	<ul style="list-style-type: none"> ▪ Low-income seniors with medical complexity 	<ul style="list-style-type: none"> ▪ Patients retain their PCP, and receive care management from a nurse practitioner (NP)/social worker team that receives consultation from a geriatrics interdisciplinary team. ▪ Initial assessment via home visit, followed by home visit to review care plan; minimum of one phone call per month to each patient; home visit after any ED visit or hospitalization. ▪ Weekly meetings between consult and care management teams; all cases reviewed at 3 and 6 weeks; 6 and 9 months; and after ED or inpatient care. ▪ Hospital to home transitional care program provides home visit, medication reconciliation, and arrangement of post-discharge care.
CareOregon	<ul style="list-style-type: none"> ▪ Medicaid enrollees who are deemed clinically complex and/or high utilizers 	<ul style="list-style-type: none"> ▪ CareSupport team offers mainly telephonic care management centralized within health plan. ▪ Health Resilience Specialists, who are not all medically trained, but who often have master's degrees in social work, build trusting relationships with patients and encourage patient self-efficacy. They meet weekly to discuss their patients and have LCSWs providing daily supervision. ▪ Coding systems developed to chart complexity, potential for success, and various medical, behavioral, and social circumstances.
Coordinated Care Clinic Hennepin County Medical Center	<ul style="list-style-type: none"> ▪ 3 or more hospital admits in past year 	<ul style="list-style-type: none"> ▪ Components of broader Hennepin Health model. ▪ aICU model using a special clinic that only serves patients who are complex high-utilizers. ▪ The aICU team includes a physician, nurse practitioner, licensed clinical social worker, RN coordinator, licensed practical nurse (LPN), alcohol/drug counselor, behaviorist, pharmacist, and office specialist who greets the patient. The office specialist may be the most important person on the team, building close relationships with patients. ▪ Most care is in-clinic or telephonic; patients can walk in and get same-day visits. Most home visits are done through a separate home care agency.
Boeing Intensive Outpatient Care Program The Boeing Company, Regence BlueShield, Everett Clinic, Valley Medical Center IPA, and Virginia Mason Medical Center	<ul style="list-style-type: none"> ▪ The predicted highest cost quintile of Boeing's Puget Sound employees and their adult dependents 	<ul style="list-style-type: none"> ▪ RN care manager provides health coaching for chronic conditions. ▪ Care plan is implemented through in-person, telephonic, and e-mail contacts. ▪ Patients are risk-stratified, intensity of care is based on risk score. ▪ Timely notification of ED visits and inpatient admissions and daily team planning sessions.
Chicago Housing First Program	<ul style="list-style-type: none"> ▪ Shelter-homeless, street-homeless and unstably housed; average homelessness 30 months 	<ul style="list-style-type: none"> ▪ Transitional housing provided post-discharge, followed by placement in long-term housing. ▪ Master's level social work case management at the housing site. ▪ No medical intervention, though the case managers did provide care coordination to medical facilities.

PROGRAM	POPULATION	KEY CARE MANAGEMENT ELEMENTS
Seattle Housing First Seattle Downtown Emergency Services Center	<ul style="list-style-type: none"> Chronically homeless individuals who incurred the highest costs for alcohol-related emergency services 	<ul style="list-style-type: none"> Patients were offered individual housing units in a new supportive housing facility regardless of sobriety. Facility had a 24-hour staff of social workers and other clinicians. Staff helped residents with medical and social services and worked with them to address behavioral issues.
Camden Coalition of Healthcare Providers	Camden residents with two or more inpatient admissions in six months and at least two chronic conditions	<ul style="list-style-type: none"> Community-based model, with care management teams: (a) doing home visits; (b) reaching out to homeless patients on the street; and (c) helping patients access primary care. Patients approached by RN during inpatient visit to join program with PCP visit scheduled within 7 days of discharge. Team visits newly enrolled patients each week and attends their medical appointments. Nursing team members aim to transition patient to health coach or community health worker, who provide ongoing support and guidance once patient is medically and socially stable (ideally within 6-8 weeks).
Atlantic City Special Care Center AtlantiCare	Low-income union members working in Atlantic City casinos with chronic diseases and in the top 10% of predicted health spending	<ul style="list-style-type: none"> aICU model with patients leaving PCPs to receive all care at the Special Care Center (SCC). This program relies heavily on well-trained health coaches, who are mostly medical assistants and LPNs, culturally and linguistically concordant with the patients. Health coaches participate in the initial assessment and are responsible for implementing the care plan; meeting independently with patients; attending physician visits; helping patients set goals and manage their own care; monitoring patients' ability to adhere to their plan; and helping them overcome barriers to meeting their health goals. Coaches interact with patients through clinic visits, home visits, phone or e-mail.
Homeless Patient-Aligned Care Team (H-PACT) West Los Angeles VA	Homeless veterans coming to the ED with complex medical and social problems	<ul style="list-style-type: none"> aICU model with HPACT team providing primary care and referrals to housing, social service, substance/alcohol services. Visits are at least one hour (often 2 hours, including nursing and physician and social worker involvement) so that multiple issues can be handled in one visit. Team is co-located in one space; team meetings held post-visit to review and update care plan. The clinic works closely with a housing assistance unit located in the same facility.
Stanford Coordinated Care Stanford University	Stanford University employees and their dependents with multiple chronic health conditions	<ul style="list-style-type: none"> Hybrid model with patients choosing to change their PCP to the aICU team or to remain with their previous PCP and receive care management at their PCP's office. Care plan developed according to patient activation measure (PAM) and domain assessment tool scores. Non-professional care coordinators (like health coaches) meet with patients before a physician visit to generate an agenda, participate in the visit as a scribe, and have a post-visit for action plans and closing the loop. Daily inpatient visits by RN to help with post-discharge planning. Pharmacist certified diabetes educator (CDE) sees patients with diabetes and asthma and adjusts hypertension, diabetes and lipid medications via protocol as appropriate. Patient Advisory Council meets bi-monthly, facilitated by licensed clinical social worker (LCSW).
CareMore	CareMore members (mostly Medicare or dual eligible) at highest risk for high costs	<ul style="list-style-type: none"> Mainly an aICU model with care centers for high-utilizing patients; patients with their own PCP have their care co-managed between the CareMore physicians and PCP. The care center team includes the CareMore physician ("extensivist"), NP, RN care manager, and medical assistant care extenders. One physician and one NP are dedicated exclusively to home visits. Home monitoring of blood pressures, weights, and blood sugars are transmitted to RN care managers.
Hospital to Home Program, Chronic Illness Demonstration Project New York City Health and Hospitals Corporation (NYC HHC)	Fee-for-service Medicaid patients at high risk for hospitalization	<ul style="list-style-type: none"> Care coordinators both conducted outreach to enroll patients and provided case management. Housing Coordinator dedicated to helping homeless patients complete housing applications, conduct housing interviews, and transition into permanent housing. Cell phones, MetroCards provided to patients, a "patient necessity fund" supported miscellaneous patient expenses (eg- getting a copy of birth certificate, refilling prescription, etc). Real-time alerts when patients entered into hospital system for emergency room or outpatient visit, or inpatient admission.

Reflections for High-Utilizer Programs

Following are 10 key reflections gleaned from the exploration of the 14 high-utilizer programs described in this brief. The insights from these existing programs can help other efforts across the country refine their approaches for complex-need populations.

1. **High-utilizer programs can make substantial reductions in hospital admissions, hospital days, ED visits, and total costs of care.** Five of the programs reviewed in this brief had relatively robust evaluations, demonstrating that high-utilizer programs can substantially reduce health expenditures. More work is needed to evaluate Medicaid-only programs.
2. **For homeless or precariously housed people, providing permanent housing with case management – with no medical personnel – appears to be the most powerful way to reduce costly health care utilization.** It is unclear why so many resources are spent on medical care for homeless people when simply providing housing is effective. Case management at the housing site by social workers adds to the value of stable housing.
3. **There is a big difference between the aICU model – referring high-utilizing complex patients to a specialized team with a small panel size -- and the primary care model.** It is not possible to say that one of these models is better. Programs can be a hybrid of these models: (a) patients having good primary care stay with their PCP; and (b) those without primary care or wishing to leave their PCP enter the aICU.
4. **There is no standard composition of care management teams.** Who is on the team depends on the characteristics of the patients being served. Most teams include RN and social worker. Having a psychiatrist and a pharmacist to work with the care management team is helpful. Some programs have non-professional personnel such as navigators or health coaches, who can assist the professional team members and allow caseloads to increase.
5. **Most programs perform a careful initial assessment, develop a care plan, and incorporate regular follow-up by the care management team.** The intensity of follow-up is generally reduced if patients improve.
6. **Programs tend to have a coaching rather than a rescuing philosophy.** Rather than doing everything for their patients, they attempt to teach patients to better self-manage their health, their social problems, and their ability to navigate the health and social services systems.
7. **Many programs have a home visit component.** Because of the difficulty comparing cost and utilization outcomes among the programs, it cannot be concluded whether home visits are a necessary feature of high-utilizer programs. Many people working in these programs feel that home visits are very important.
8. **Some programs allow patients to access the care management team 24/7; others do not.** The Special Care Center idea to program patients' phones to speed dial a 24/7 access number rather than 911 may be an effective way to reduce unnecessary ambulance and ED use.
9. **Coaching patients to understand their medications and to become more medication adherent is an essential feature of all programs.** Given the morbidity profile of these patients, complicated medication regimens are common. In addition, many of these patients have historically lacked strong communication channels with prescribing providers.
10. **Caseloads vary with team size, team composition, and patient complexity.** A single RN care manager can usually care for 40-50 patients; a RN/social worker team can care for 100 patients, and a team that includes health coaches or navigators working under the mentorship of RNs and/or social workers may be able to double caseloads.

Cost and Utilization Findings

Making conclusions about cost savings and utilization reductions created by programs for high-utilizing patients is fraught with difficulty. The programs described in this brief use different metrics and different methodologies to report these data, so it is not possible to make comparisons among the 14 programs. Without either following a cohort of patients for several years, doing a randomized controlled trial, or comparing patients in the program with a carefully matched control group, cost and utilization reductions may be due to regression to the mean. Because disease severity waxes and wanes, patients with high costs in one year are likely to have far lower costs the next year even if no intervention is made. Much of the data from the programs described in this brief compare costs and utilization during the 6-12 months prior to the start of the program with costs and utilization during the initial 6-12 months of the program. Often utilization and cost reductions are dramatic, but that does not signify that the program was successful. Without a control group or several years of data, no conclusions can be drawn.

Five of the programs that were reviewed appear to have reliable data, as follows:

1. **The GRACE program** was a two-year randomized controlled trial, demonstrating net cost savings for the higher-risk patients in Year 3, which was a post-intervention year. Year 2 of the intervention found a significant reduction in ED visits and hospital admissions for higher-risk patients. Year 2 was cost neutral with increased chronic and preventive care costs and the cost of the intervention offsetting the ED and hospital savings.² The true cost savings took place the year after the intervention was completed, showing that the intervention continued to show a positive impact after it ended. Even though GRACE patients were mainly low-income, they were primarily elderly patients on Medicare. Thus the GRACE program's lessons cannot be blindly applied to Medicaid-only patients, who tend to have more mental health, substance use, and social isolation than the GRACE patients.
2. **The Chicago Housing First program** was also a randomized controlled trial, showing that utilization for the intervention group (who received stable housing and non-medical case management), adjusted for baseline characteristics, was significantly lower than for the control group. This program provides good evidence on what works for homeless or precariously housed patients who are on Medicaid or uninsured.
3. **Community Care of North Carolina (CCNC)**, a program for Medicaid patients, has followed cost and utilization measures for a number of years. High-risk patients enrolled in CCNC were compared with high-risk North Carolina Medicaid patients not enrolled in CCNC. CCNC patients have had lower hospital admissions, ED visits, and total costs compared with non-CCNC patients. While the non-CCNC group is not strictly a matched control group, the CCNC high-risk patients on average have higher clinical risk than the high-risk non-CCNC group, making the cost and utilization reductions in the CCNC group, compared with the non-CCNC group, very believable. Risk-adjusted total costs for fiscal year 2010 were 15 percent lower in the CCNC group than in the non-CCNC group. In fiscal year 2010, total savings were \$382 million, comparing actual costs with expected costs if all Medicaid patients were not enrolled.^{3,4}
4. **The Atlantic City Special Care Center** demonstrated cost and utilization declines compared to a control group of non-Special Care Center patients, with cost savings of 18 percent compared with the control group. Because the sample was small, the changes were not statistically significant. The control group was reasonably similar to the Special Care Center patients. Savings were the greatest for the patients with the greatest complexity.
5. **CareMore's** cost data, showing substantial total health care cost reductions, are averages from thousands of patients compared with similar risk Medicare patients not in CareMore. CareMore's risk-adjusted total per capita health spending has been 15 percent below the national Medicare average.

Table 2: High-Utilizer Programs Cost and Utilization

PROGRAM	TIME SPAN	HOSPITAL ADMITS	HOSPITAL DAYS	ED VISITS	TOTAL COSTS	NET TOTAL COSTS (SAVINGS – PROGRAM COSTS)
CALIFORNIA FREQUENT USERS	1 year pre-post	-14%	-5%	-22%		
COMMUNITY CARE OF NORTH CAROLINA		2010: High-risk patients admitted 37% less than non-high-risk		2010: CCNC high-risk patients 10% fewer ED visits than non-CCNC high-risk patients	2010: total risk-adjusted costs 15% lower in CCNC patients than in non-CCNC patients	\$984 million savings 2006-2010; \$382 million savings 2010; comparing actual costs with expected costs had the program not existed.
GRACE		By year 2, high-risk patients had 44% fewer admits than controls		By year 2, ED visits were 23% lower for high-risk GRACE patients than for controls	In year 3, for high-risk enrollees, total costs were \$5,100 compared with \$6,600 for controls (p < .001)	For high-risk patients, in years 1 and 2 program costs = cost savings. Year 3 showed significant net savings.
CAREOREGON	Average 11.5 months pre-and 8-months post enrollment in program	For initial 222 patients, reduction of 35% with a minimum of 6 months exposure to program		For initial cohorts of 222 patients, reduction of 34% with a minimum of 6 months exposure to program.		Program is currently developing a propensity-matched comparison group. Also planning to look at impact on total primary care clinical utilization trends.
HENNEPIN COUNTY MEDICAL CENTER	6 months and 1 year pre-post	-59% after 6 months	- 12% after 6 months	- 50% after 6 months	After 1 year, total charges fell 23%, a drop of \$25,000 per patient	
BOEING IOCP	12 months	-28%				20% reduction from baseline, net savings; not statistically significant
CHICAGO HOUSING FIRST	RCT - 200 in each group (18 mths)	-29%	- 29%	- 24%		Not calculated
SEATTLE HOUSING FIRST	1 year pre-post				Cost drop of 76% for housed individuals. Those on waiting list had cost drop of 42%. 41% lower Medicaid costs after 1 year of supportive housing.	Net savings of \$2,450 per person who received housing. Program was very small, so data are not conclusive.
CAMDEN COALITION	No data yet; planning an RCT for 2014.					
ATLANTIC CITY SPECIAL CARE CENTER	Compared SCC with non-SCC patients for 1 year pre-post	-24%	- 30% pre-post; not compared with control group	- 22% pre-post; not a comparison with control group		Net cost savings of 18% compared with comparison group. Not statistically significant due to inadequate sample size (p = .24).
H-PACT	No data yet					
STANFORD	No data yet					
CAREMORE	Compared CareMore with Medicare costs for similar patients	30-day re-admissions 13.6% compared with 20% for Medicare			PMPM total health care costs \$2,250 for CareMore compared with \$3,500 for Medicare. Risk adjusted total per capita health spending 15% below national average.	
NYC HHC	No data yet					

Conclusion

This is a preliminary exploration of programs for high-utilizing Medicaid beneficiaries. While on the surface, the programs reviewed look very different, all share a common set of high-touch, highly focused care management principles. Much still needs to be done to fully understand how to best structure care approaches for this population. Nonetheless, the programs reviewed offer valuable insights into how to improve care and stem excessive spending for Medicaid's highest-cost subsets.

Appendix: Characteristics of High-Utilizer Programs

PROGRAM	California Frequent Users Initiative, Santa Clara County
ORGANIZATION	Silicon Valley Health Coalition, including multiple Santa Clara County stakeholders, 2003-2007. ⁵
POPULATION	53% minority, 63% age 40-59, 60% male, 13% married. 63% mental illness, 62% substance abuse, 96% chronic diseases, 45% homeless. 15% 1 condition, 34% 2 conditions, 28% 3 conditions, 22% 4-5 conditions. Mostly Medi-Cal or uninsured. Patients had 8+ ED visits in 12 months. Patients were recruited to the program from the ED.
MODEL	ED-based model with outreach/home visits, housing services and attempt to link with primary care within the community clinic system.
TEAM	1 Project Director; 1 LCSW Case Manager Supervisor; 4 Case Managers; 1 MSW Intern; 0.125 time Med Director; 0.125 time Psychiatrist.
CASELOAD	25 clients, but varies with intensity level.
24/7 ?	No
CARE MANAGEMENT APPROACH	<ul style="list-style-type: none"> ▪ Case managers with office space at each hospital, not co-located in ED. Partnership with program for the homeless. ▪ Access to vouchers for permanent housing through partnerships with housing agency. ▪ Ongoing case management for housed clients to minimize loss to follow up. ▪ Small incentives to enhance recruitment (phone cards, grocery vouchers, bus tokens). ▪ Transportation assistance (bus passes, taxi vouchers, home visits). ▪ Program staff attended client appointments. ▪ Multidisciplinary team met regularly in "case conferences" to discuss clinical issues. ▪ Program staff or partner provided benefits advocacy for clients. ▪ Direct access to a psychiatrist for medication management, disability assessments, and consultation. ▪ Teach clients how to navigate health system.
GRADUATION	<p>Average time in program 11 months. Program used "tiered" system to balance caseload acuity and transition clients to less intensive services:</p> <ul style="list-style-type: none"> ▪ Level 1: very frequent contact; ▪ Level 2: less frequent contact, initiated by program; ▪ Level 3: stable, less frequent contact, initiated by patient; and ▪ Level 4: discharge (graduation).
MEASURES	<p>Cost/Utilization (among enrollees):</p> <ul style="list-style-type: none"> ▪ 22% decrease in median ED visits per client 1 year pre-post (median visits per client went from 9 to 7). ▪ 35% decrease in median ED charges per client (\$1,200) 1 year pre-post (went from \$3,400 to \$2,200). ▪ 30% decrease in mean ED visits and ED charges 1 year pre-post for homeless clients connected to permanent housing vs. 10% decrease for clients not connected to permanent housing. ▪ 14% decrease inpatient admits per client 1 year pre-post (went from 3.61 to 3.11). ▪ 15% decrease in mean inpatient charges per client 1 year pre-post (went from \$116,000 to \$99,000). ▪ 25% decrease in mean inpatient days per client per year (went from 13 to 9.7 days per client per year). ▪ 25% decrease in mean inpatient admits, hospital days, and inpatient charges 1 year pre-post for homeless clients connected to permanent housing vs. 25% increase for clients not connected to permanent housing. <p>The costs of implementing the program are not available.</p> <p>Process/Outcome:</p> <ul style="list-style-type: none"> ▪ 47% of homeless clients connected to permanent housing or HUD voucher. ▪ 30% of uninsured placed on Medi-Cal. ▪ 25% of clients without SSI received SSI. ▪ 35% of clients assigned a PCP, 81% attended clinic appointments. ▪ 47% with mental health connected to mental health services. ▪ 40% with substance abuse connected to substance abuse services.

PROGRAM	Community Care of North Carolina (CCNC)
ORGANIZATION	Community Care of North Carolina is a non-profit comprised of 14 community networks, run by physicians and case managers, covering the entire state. It was created by, and contracts with, NC's Dept of Health and Human Services (Medicaid program). The program has been in existence since 1998. ^{6,7,8,9,10}
POPULATION	<p>CCNC covers 1.3 of 1.5 million Medicaid patients in NC. The only Medicaid recipients not required to be in the program are pregnant women, foster children, and dual eligibles. It is not only a program for high utilizers, but the program risk-stratifies the patients by severity of illness and past utilization, with higher risk patients receiving more intense care management. CCNC has a methodology to risk-score its population.</p> <p>About 286,000 CCNC enrollees are from the Aged, Blind and Disabled (ABD) category. About 72% of the CCNC population are children whose risk scores tend to be low compared with ABD patients. Currently the average risk score is increasing, showing that CCNC is enrolling sicker patients.</p> <p>For the adult CCNC population, a majority have significant chronic illness, with 37% having 3 or more chronic conditions. The most common are hypertension (40%) and mental illness (34%), followed by diabetes (20%) and COPD (11%). Priority populations:</p> <ul style="list-style-type: none"> ▪ Inpatients who need transitional care; ▪ High-risk/high-cost patients are the priority of CCNC, based on a risk-adjustment methodology that prioritizes people who have spent more time in the hospital (admit/ED/readmit) than expected given their clinical risk group; ▪ Patients referred by providers or ED; and ▪ Chronic pain or palliative care patients.
MODEL	Mixed primary care/transitional care model. Care managers are embedded in large-volume hospitals to coordinate discharges. 14 regional hubs (networks) house the care management teams, led by RNs, who go from practice to practice in their region to assist those practices with both complex and less complex patients with chronic illness. There is a centralized call center. Primary care practices are incentivized to participate by receiving a PMPM payment of \$2.50 - \$5 in addition to receiving the assistance of the care managers. The regional networks, which are part of the non-profit Medicaid contractor, include the care management team, local PCPs, a local hospital, the local Department of Social Services (DSS) and the local health department. Some doctors' offices have their own care managers on staff, but most depend on the network's care managers. In smaller practices, a network care manager may be shared among several practices, while some larger practices may have full-time on-site care managers.
TEAM	<ul style="list-style-type: none"> ▪ Care managers (RNs, MSWs, and paraprofessionals); ▪ A pharmacist in each network; ▪ A part-time psychiatrist in each network; ▪ A masters level behavioral social worker in each network; ▪ Many networks have hired non-licensed staff to support the care managers in their outreach and education efforts; and ▪ Networks have hired non-clinical personnel to provide administrative help (e.g., reminding patients for appointments and ensuring that follow-up visits to specialists are kept).
CASELOAD	50-75 per care manager at any one time. For young adults and children, panel size is 8 -10,000 per care manager; about 2% need care management. For ABD panel size is 3-5,000 per care manager and 5% need care management.
24/7?	PCPs must be available 24/7 as a requirement of participation, but care managers are not available 24/7.
CARE MANAGEMENT APPROACH	<p>Components of care management:</p> <ul style="list-style-type: none"> ▪ <i>Patient identification and comprehensive assessment:</i> Identify patients through direct referrals, by mining administrative claims data (risk stratification tools, frequent hospital and emergency room admissions), through screenings and assessments, and through chart reviews that identify gaps in care. ▪ <i>Developing an individualized care plan:</i> The health care team — including the care manager, primary care provider, patient and family/caregiver — agree on goals in plan. ▪ <i>Care coordination:</i> The care manager ensures the patient's care plan is implemented, communicating and coordinating across providers and delivery settings. ▪ <i>Reassessment and monitoring:</i> Monitor the patient's progress toward goal achievement on an ongoing basis, adjusting care plans as needed. <p>Hospital-based care managers visit patients at the bedside when possible – begin engagement with patients and families preparing them for discharge. They ensure that patients have a timely outpatient follow-up to re-link patients with the primary care provider and/or specialist quickly after discharge. Discharged patients are referred to regional network care managers after discharge. The goal for high-risk discharged patients is that they receive a home visit within 3 days of discharge and care managers also help the patients schedule and get transportation to follow-up ambulatory visits. They provide medication reconciliation and medication education. Families and patients are taught red flags related to worsening of their condition, when to call the PCP, and how to avoid readmission to the hospital.</p> <p>Medication reconciliation is viewed as one of the most important care management functions for high-risk patients. Preferably this is a face-to-face/home-visit type interaction. RNs are trained in medication management, which includes medication reconciliation between hospital, home, provider(s), and retail pharmacy medication lists for the patient. Medication management is tracked in an automated system and providers receive feedback and communication regarding results and potential medication discrepancies that could result in repeat hospitalization and morbidity.</p> <p>Network care managers are responsible for helping physician practices identify patients with high-risk conditions or needs, assisting providers with disease management education and follow-up, helping patients coordinate their care or access needed services, and collecting performance data. Arrangements are made with hospitals to find out</p>

PROGRAM	Community Care of North Carolina (CCNC)																																			
	<p>which ABD patients have been in hospital or ED in order to institute intensive care management. Network care managers do home visits to observe patients and use of medications at home. For complex patients, home visits may be done by NPs.</p> <p>All care managers are trained in motivational interviewing. Patients are given a self-management notebook to facilitate communication with PCP and other community providers. Care managers have telephone, home visit, and face-to-face clinic encounters with patients for med management, reminders, navigation. Care managers refer patients to community agencies: DSS, mental health, school nurses, etc.</p> <p>Care managers provide timely information to the PCP about the hospitalization, social and environmental concerns about the involvement of other services and providers. They communicate with PCP on patient goals, plans, education, adherence. Care managers prepare patients for follow-up visits, coaching them to develop a list of questions in advance, to gather their medications, and to bring their personal health record. Primary care practices are encouraged to integrate behavioral health into their practices</p>																																			
GRADUATION	<p>CCNC graduates patients once needs are being met, but duration and intensity of care management varies according to the needs of the patient. For example, in a recent analysis of over 13,000 patients with complex chronic medical conditions who receive transitional care support after a hospital discharge, 66%, 49%, and 31% of patients were still receiving some level of contact with a care manager at 1 month, 3 months, and 6 months post-discharge, respectively.</p>																																			
MEASURES	<p>Mercer Government Human Services Consulting estimated in February 2009 that the Community Care program saved the state approximately \$147 million in fiscal year (FY) 2007, compared to what costs would have been in that year without the program. This represented a savings of about 11 percent. The Mercer analysis did not use control or comparison groups. The Mercer savings estimates for earlier years are: FY 2006: \$162 million (11 percent), FY 2005: \$81 million (6 percent), FY 2004: \$124 million (10 percent), FY 2003: \$60 million (6 percent). For FY 2009, Mercer estimated that the program saved North Carolina Medicaid \$190 million; these are net savings after subtracting program costs.</p> <p>Milliman, Inc. estimates \$984 million in savings over 4 years (2006-2010) when comparing costs for patients enrolled in CCNC vs. patients not enrolled. CCNC risk-adjusted PMPM costs for FY 2010 are 15% lower than the costs for non-CCNC patients (all patients – children and adults), but for the ABD non-dual patients, CCNC risk-adjusted costs are only 3.3% lower than non-CCNC. These are net savings after subtracting program costs. CCNC only began to prioritize high-utilizers in 2010. The CCNC patients are sicker than the non-CCNC patients. The risk scores (complexity) for CCNC patients are increasing each year. For the ABD population with 2 chronic illnesses, CCNC patients had an ED visit rate 19% below the non-CCNC population in 2010. For ABD with one physical chronic illness and one mental health or substance abuse diagnosis, CCNC patients had an ED visit rate 21% below the non-CCNC population in 2010.</p> <p><i>For the ABD population (Treo Solutions report June 2012)</i></p> <table border="1" data-bbox="298 889 1789 1073"> <thead> <tr> <th></th> <th>CCNC inpatient admits/ 1,000 yr</th> <th>Non-CCNC inpatient admits/ 1,000 yr</th> <th>% difference</th> <th>CCNC ED visits/ 1,000 yr</th> <th>Non-CCNC ED visits/ 1,000 yr</th> <th>% difference</th> </tr> </thead> <tbody> <tr> <td>2007</td> <td>303</td> <td>459</td> <td>-34%</td> <td>1,090</td> <td>1,224</td> <td>-11%</td> </tr> <tr> <td>2008</td> <td>299</td> <td>460</td> <td>-35%</td> <td>1,132</td> <td>1,259</td> <td>-10%</td> </tr> <tr> <td>2009</td> <td>302</td> <td>460</td> <td>-34%</td> <td>1,207</td> <td>1,310</td> <td>-8%</td> </tr> <tr> <td>2010</td> <td>307</td> <td>484</td> <td>-37%</td> <td>1,202</td> <td>1,227</td> <td>-10%</td> </tr> </tbody> </table> <p>Process and outcome measures, 2012</p> <p>Diabetes:</p> <p style="padding-left: 40px;">A1c below 8: 61% (mean national Medicaid HMO 48%) NOTE: try to line up these 3 lines; the A1c line was too far to the left BP less than 140/90: 66% (mean national Medicaid HMO 61%) LDL less than 100: 47% (mean national Medicaid HMO 35%)</p> <p>Cardiovascular Disease:</p> <p style="padding-left: 40px;">BP less than 140/90: 64% (mean national Medicaid HMO 57%) LDL less than 100: 47% (mean national Medicaid HMO 42%)</p>		CCNC inpatient admits/ 1,000 yr	Non-CCNC inpatient admits/ 1,000 yr	% difference	CCNC ED visits/ 1,000 yr	Non-CCNC ED visits/ 1,000 yr	% difference	2007	303	459	-34%	1,090	1,224	-11%	2008	299	460	-35%	1,132	1,259	-10%	2009	302	460	-34%	1,207	1,310	-8%	2010	307	484	-37%	1,202	1,227	-10%
	CCNC inpatient admits/ 1,000 yr	Non-CCNC inpatient admits/ 1,000 yr	% difference	CCNC ED visits/ 1,000 yr	Non-CCNC ED visits/ 1,000 yr	% difference																														
2007	303	459	-34%	1,090	1,224	-11%																														
2008	299	460	-35%	1,132	1,259	-10%																														
2009	302	460	-34%	1,207	1,310	-8%																														
2010	307	484	-37%	1,202	1,227	-10%																														

PROGRAM	Geriatric Resources for Assessment and Care of Elders (GRACE)
ORGANIZATION	GRACE is a program for low-income patients utilizing Wishard Health Services in Indianapolis, one of the largest public safety net systems in the US. Wishard has a hospital and 10 community health centers. The program began as a RCT in 2002-4 and continues as an ongoing program (no longer RCT). ^{11, 12}
POPULATION	<p>Low-income seniors, 95% on Medicare, 37% on Medicare and Medicaid; over 50% African-American. Average annual household income below 200% of the federal poverty level. Medical issues tend to be geriatric: medication management, falls, chronic pain, urinary incontinence, depression, malnutrition/weight loss, visual impairment, hearing loss, and dementia.</p> <p>During and after the RCT, patients have been recruited from 6 Wishard clinics. Currently inpatients being discharged receive GRACE transition services. In the RCT, patients were not chosen based on utilization criteria or medical complexity, but on average the patients had several serious chronic conditions and impairments in ADLs. Palliative care and ESRD patients were not included. Patients needed access to a telephone. English-speaking only. Following the RCT, ambulatory patients enter GRACE via referral from PCPs and hospitalized patients are referred from discharge planners.</p>
MODEL	Patients retain their PCP, and receive care management from a NP/SW team which receives consultation from a geriatrics interdisciplinary team. 1 GRACE team for 3-4 clinics. A hospital to home transitional care program has been added to GRACE.
TEAM	NP and social worker (LCSW with geriatric experience). GRACE feels that NP is more valuable than RN; PCPs are allowing NPs to change meds. Social worker is the most valuable person of all. The interdisciplinary consult team includes geriatrician, pharmacist, physical therapist, mental health SW, and community-based services liaison. The NP and SW received a 12-session training program.
CASELOAD	Caseload is 80-120 patients per NP/SW team. This varies greatly depending on the complexity of the patients, whether the patients are referred from inpatient or primary care sites, whether the patients have primarily medical or primarily social work issues. For transitions patients, each NP/SW team enrolls 2 new patients per week which means that they need to graduate 2 patients per week to keep their case load from expanding too much.
24/7 ?	No. However, the care management team links closely with a nurse on-call service and whatever arrangements the primary care practice has for 24/7 coverage.
CARE MANAGEMENT APPROACH	<p>The care management team does an initial assessment in the home including home safety evaluation. The team meets with the interdisciplinary consult team to create a care plan using the protocols for common problems such as med management, falls, depression, incontinence, chronic pain, dementia, hearing loss. The care plan is shared with the PCP. Then another home visit is done to review the care plan and patient goals. The care plan is implemented through clinic, home, or telephonic encounters with NP/SW. The consult team meets weekly with the care management team to go over cases. Minimum patient contact is one phone call per month; intensity of contact varies depending on patient need. A face-to-face home visit occurs after any emergency department visit or hospitalization. Patients contact their GRACE team as needed via a dedicated phone line. Social worker plays a key role in helping patients access community resources and navigating health and social services systems. The care plan is reassessed and changed every year. All patients are reviewed by the consult team at 3 and 6 weeks; 3, 6 and 9 months; and after ED or inpatient care. For hospital to home transition, there is home visit, med-rec, informing PCP of post-discharge status, and arranging post-discharge care.</p> <p>Dr. Steven Counsell, GRACE's leader, lists three elements as key to success: 1) the care management team is an extension of the primary care practice; 2) home assessment and care protocols for common conditions, including medication management; and 3) weekly team conferences with the consult team.</p>
GRADUATION	No clear guidelines when a patient can be graduated from the program, but the program tries hard to graduate patients in order to enroll new patients. Average length in program is 12 months with range of 6-18 months.
MEASURES	<p>During the RCT, the cumulative 2-year ED visit rate per 1,000 was lower in the intervention group. ED visits per 1,000 were similar between groups in year 1 but significantly lower in the intervention group in year 2. In year 2, hospital admission rates were significantly lower in the intervention group. Separating out the higher-risk from the lower-risk patients, the higher-risk patients showed significant cost savings, compared with controls, that only started in the third year. The low-risk group cost more than controls.</p> <p>For the high-risk group, hospital days per 1,000/year in year 1 of the RCT were 3,938 for the GRACE patients and 4,544 for controls. In year 2, hospital days per 1,000/year were 2,152 for GRACE patients and 3,943 for the controls. Hospital admission rates were reduced by 12% in year 1 and 44% in year 2. In year 2, ED visits per 1,000/year were 848 for GRACE patients and 1,314 for controls. For the high-risk group, in year 3 (which was the most successful year for cost reduction), total costs were \$5,100 compared with \$6,600 (p less than .001). Program costs were \$1,260 per patient per year, and \$1,432 per patient per year for high-risk patients. In years 1 and 2, GRACE was cost-neutral (program costs similar to program savings) for high-risk patients. In year 3, GRACE savings exceeded program costs.</p> <p>HealthCare Partners Medical Group in Southern California adopted the GRACE model and after 1 year found a 22% reduction in ED visits, 34% reduction in hospital admits, and 29% reduction in hospital bed-days compared to the year prior to GRACE adoption. The Indianapolis VA Medical Center adopted GRACE and after 1 year found a 45% reduction in hospital admits, and a 46% reduction in re-admissions compared to the year prior to GRACE adoption. Other organizations are implementing GRACE around the country.</p> <p>During the RCT, GRACE participants had significantly better improvements in quality of life (SF-36) compared with controls, but no differences in ADL status. GRACE patients were more likely than controls to receive evidence-based treatment related to preventive care, continuity of care, medication use, and end of life care.</p>

PROGRAM	CareOregon
ORGANIZATION	The program was initiated by CareOregon, an Oregon Medicaid managed care plan, in 2003. It was developed in collaboration with CareOregon’s safety net provider network. ^{13,14}
POPULATION/ ELIGIBILITY CRITERIA	<p>Patients are Medicaid recipients enrolled in CareOregon who are clinically complex and/or high utilizers. Initially, patients were chosen for the program from: 1) an ACG-based predictive model; 2) provider referrals; and 3) patients transitioning from hospital to home. Now, patients are chosen from lists of high utilizers that are reviewed by the patient’s primary care provider. Predictive models are not always useful because only 45% of today’s costliest patients will be costly next year. Clinicians can help predict costly patients using 4 queries:</p> <ul style="list-style-type: none"> ▪ Who is on a steady health decline trajectory? ▪ Who, without more intensive assistance <u>now</u>, is going end up in the ED or the hospital? ▪ Who keeps you up at night? ▪ For whom do you need some extra intelligence -- eyes and ears in the home? <p>Most high utilizers have 3 issues: (1) physical (COPD, CHF, HBP, diabetes); (2) mental health (serious disease such as schizophrenia, but also depression and anxiety – often from adverse early life events); and (3) addiction (especially opioids and alcohol).</p>
MODEL	There are two models. Phase 1, CareSupport began in 2003 and continues. Phase 2, the Health Resilience Program, was added to Phase 1 in 2011. CareSupport situates care management teams within the health plan, with teams aligned with one or more primary care practices. CareSupport is primarily telephonic. The Health Resilience Program is a hot spotters model that expands the clinical care team by adding a Health Resilience Specialists [NOTE: should leave out the a before Health Resilience..., and make the entire sentence plural because there many HRSs and it sounds as though there is only one] (HRS) who are best described as “engagement coaches.” HRSs are situated within primary care practices and a few specialty practices as part of the care team and spend about 60% of their time working with patients in the community, using a behavioral health model more than a medical model. Health Resilience Program patients have at least one non-obstetric inpatient admit within the past 12 months and at least 6 ED visits within 12 months (most have had a much higher number of ED visits). They also have to be receiving primary or specialty care from a specified group of clinics that have a high prevalence of high cost patients. CareSupport patients have less specific criteria. If a CareSupport patient has a primary care team with an HRS and the primary care team wants the HRS to engage the patient, the HRS will take the lead and a warm handoff would occur back to CareSupport once the patient is more stable. In general, the CareSupport care managers are managing a less acute population because patients that the HRSs are working with do not easily engage over the phone. Because HRSs are not in every clinic, the health plan care managers cover the gaps, but mostly telephonically. To summarize, the main difference between the 2 phases is that one is centralized and telephonic while the other is situated within primary care and is face-to-face.
TEAM	<p>CareSupport teams are composed of a RN, social worker who may have specialized addictions training, pharmacy tech, durable medical equipment specialist, utilization management RN, and a navigator. Navigators have a similar background as medical assistants. Teams receive addiction training.</p> <p>Health Resilience Program teams are comprised of the care team members in the practice, which usually includes a RN and a behavioral health consultant, often a pharmD and/or pharmacy tech, plus the HRS. HRSs are primarily non-medically trained people who help patients with psychosocial-driven high utilization; several are master’s prepared social workers, and two are medically trained, a RN and a respiratory therapist. Currently there are 16 HRSs. One HRS previously worked with high-risk children and families within the public school system, another is a social worker who worked on an ACT team in community mental health. Fourteen of the HSRs are embedded in primary care clinics and are part of the primary care team; the two medically trained HSRs are embedded in specialty practices.</p>
CASELOAD	For the CareSupport teams, the case load is 50-60 at any given time. For the HSRs, case loads are 20-35 per outreach worker.
24/7?	No
CARE MANAGEMENT APPROACH	<p>The principles of care management are the need for one or more persons on the care management team to build trust with the patient, to get to know the patient, to individualize the care plan based on each patient’s situation, and to accept that success takes time.</p> <p>CareSupport: The care management is primarily telephonic and generally centralized at the health plan. Care managing transitions from hospital to home is all done telephonically. To broaden this program, existing RNs and behavioral health staff within primary care clinics are being trained in care management and population management strategies, but this training is more for patients with specific chronic conditions such as diabetes and depression rather than for complex high-utilizing patients.</p> <p>Community Care Program: The outreach workers’ primary focus is to gain the trust of the patient and build self-efficacy. It is all about engagement: can we overcome adverse life events with mistrust of everyone to develop a relationship that engages the patient? The high utilizers have been geo-mapped and outreach workers are placed in clinics where the high utilizers are concentrated. They are employed by CareOregon, but are viewed by the clinic as part of the clinic’s care team. Outreach workers’ skills include:</p> <ul style="list-style-type: none"> ▪ Motivational Interviewing to resolve ambivalence about health-related behavior change; ▪ Client advocacy within and among multiple systems;

PROGRAM	CareOregon
	<ul style="list-style-type: none"> ▪ Role modeling advocacy and relational skills; ▪ Assistance in navigating health care system; ▪ Care coordination; ▪ Health literacy education; ▪ Self management skill development; ▪ Assistance with complex problem solving related to living in poverty with multiple health issues; ▪ Providing opportunities to identify as something other than a “patient”; ▪ Providing opportunities to experience success and feel confident; and ▪ Deep listening, acknowledgment and respect for each individual. <p>Both programs have team rounds once each week. In CareSupport, the rounds include health plan staff, mainly the care managers and a medical director and program supervisor. In the Community Care Program, scheduled multidisciplinary case rounds take place each week with all outreach workers coming together at a centralized location to discuss challenging client cases. These rounds are also attended by CareOregon’s Community Care program director and manager, team supervisors, a data coordinator, psychiatrist and clinical pharmacist. Ideally the client’s primary care physician would call in to the case conference however without a billable payment code this has been challenging to implement. Within the clinic, the outreach workers participate in clinical huddles that often include the PCP; these can happen as often as daily. An addiction specialist also participates for indicated patients. The rounds allow the care management programs to identify patients with similar issues (client typologies) that can assist with other patients. Patients may be classified as green, yellow or red light patients with less or more intensive challenges and more or less potential for success. Patients are evaluated according to a 7-point star: physical health; emotional and mental health; motivation and taking responsibility; drug and alcohol use; social networks and relationships; managing housing and tenancy; and self-care/living skills. Patient improvement can be tracked using the 7-point star chart.</p> <p>For patients not linked to primary care, two new pilot expansions of the primary/specialty model are being tested whereby social workers are being placed within the emergency medical system to work with frequent 911 callers and in an emergency department.</p>
GRADUATION	There is an attempt to graduate patients from more intense to less intense care management, and ideally to graduate them from the program entirely. Average time in the program is thought to be about 6-9 months. Some patients are released from care management because they are unable to improve.
MEASURES	<p>The early data from the CareSupport program was encouraging for reducing utilization, but without age matched controls it is difficult to say how well the program is doing. The most recent pre-post evaluation found an average of \$400 PMPM savings per patient enrolled in CareSupport.</p> <p>ED, hospital, and PCP utilization are being tracked for all clients enrolled in the Community Care program and trends are very promising, but because the program is so new, findings have not been aggregated across the population over time. The 7-point star is being tried as a health status outcome measure, as is a “self-sufficiency matrix.” An appropriate health status measure for complex patients is still a work in progress.</p>

PROGRAM	Hennepin County Medical Center Coordinated Care Clinic
ORGANIZATION	The Coordinated Care Clinic is part of the Hennepin County Medical Center (HCMC), an academic medical center and public hospital in Minneapolis, Minnesota. The clinic opened in July 2010.
POPULATION	<p>Patients with 3 or more hospital admits in the past year are approached for admission into the program at discharge. Many of the patients admitted into the Coordinated Care Clinic do not have a primary care physician. Hospital physicians and care coordinators regularly refer challenging patients to the Clinic. Eight potent factors that lead to the need for complex care coordination have been identified: chronic pain, impaired cognition, active chemical dependency, medical non-adherence, disruptive mental health problems, unstable housing, medical complexity, and lack of community or family support. About half the patients additionally have multi-system medical problems.</p> <p>At present, about 18% of the patients are enrolled in Hennepin Health, a Hennepin County-run ACO that is focused on addressing the social determinants of health. The remainder of the patients have Medicaid, either directly from the state or from a Medicaid HMO. In addition, 10% are dually eligible for Medicare and Medicaid. At present, the program is focused predominantly on enrolling patients who are in Hennepin Health but accepts patients with coverage from other payers on a case by case basis.</p>
MODEL	The Coordinated Care Clinic has been certified for reimbursement through the Minnesota Medicaid Health Care Home program. The Coordinated Care Clinic is an aICU, a high-risk clinic solely for high-utilizing, complex patients. These patients receive their primary care at the Coordinated Care Clinic. The Clinic is located on the HCMC downtown campus about one block from the ED. It is geographically separated from general medical clinic (a 3-block walk), which is the source of many of the patients. The concept is that highly complex patients should be in a separate clinic and taken out of general medical clinic where they are difficult to care for and where it is almost impossible to create a high-functioning service for high utilizers.
TEAM	Physician, nurse practitioner, licensed clinical social worker, RN coordinator, LPN, alcohol/drug counselor, behaviorist, pharmacist, and office specialist who greets the patient. The office specialist, a very special person, may be the most important person on the team, building close relationships with the patients.
CASELOAD	The Clinic has expanded to two teams and in December 2012 had 210 patients. The Clinic is in the process of expanding to about 300 patients.

PROGRAM	Hennepin County Medical Center Coordinated Care Clinic
24/7 ?	No. The Clinic is open weekdays from 8 – 4:30. After hours, patients contact the general medical clinic on-call system or nurse advice system. This is seen as a problem in averting unnecessary night and weekend ED visits. There is a plan to start an after-hours call system.
CARE MANAGEMENT APPROACH	<p>The RN or social worker makes the first contact prior to hospital discharge and invites patients to join the Coordinated Care Clinic. Patients receive a phone call the morning after discharge encouraging them to visit the Clinic; they are offered help with transportation (taxi vouchers or bus passes). Post discharge appointments are scheduled within 3 days of discharge. The RN Care Coordinator will make phone contact with the patient the day after discharge if there is not an appointment that day. Following discharge, patients can also walk in without an appointment. The team does a formal medical, behavioral, and social assessment. The team does occasional home visits but typically works in close relationship with the Visiting Nurses Association for this service. For patients in homeless shelters, the Clinic works closely with shelter-based care teams who visit them. Those teams often bring the patients to their visits at the Clinic. Patients get taxi vouchers, bus passes, and anything that might avoid the 911 call. For patients who do not show up for their first visit after discharge, the Clinic keeps calling them and connects with their shelter team. There is a 70% show rate for the initial visit. Follow-up visit show rates are around 90%.</p> <p>The key is to develop a trusting relationship between the patients and someone (often the office specialist who greets the patients) in the Coordinated Care Clinic. The team meets two times a week for an hour in the mornings to discuss patients. In addition to individual patient discussions, the team addresses such issues as opioid-seeking patients who are abusive to team members. There are also daily huddles for pre-visit planning.</p> <p>The Clinic has a registry for tracking purposes; all patients are reviewed at least quarterly. Clinic visits often involve meeting with 2-4 members of the team. Patients are encouraged to walk in to the Clinic as an alternative to the ED. High-intensity outpatient care is delivered, with patients having an average of 2.5 contacts with the clinic per month. The program is mainly clinic-based rather than community-based. Patients who fail to engage with the program in spite of vigorous effort may need community-based or home-based care. The clinic averages around 15 visits per day. This number is steadily growing as the patient roster expands.</p>
GRADUATION	<p>There are, to date, no “graduates” of the clinic. Moreover, there are not even graduation criteria. However, when patients stabilize, the intensity of the care reduces in a natural fashion. Many patients remain chronically unstable and require intensive care management to minimize inpatient episodes.</p> <p>This is not to say that nobody ever leaves the clinic. Some patients choose to leave the HCMC care system. Occasionally, there is attrition related to disagreement around the care plan, most notably cessation of opioid therapy due to opioid associated aberrant behaviors. Finally, there is some mortality (22 deaths in roughly 250 patient years).</p>
MEASURES	<p>Compared with 6 months prior to enrollment in the Coordinated Care Clinic, hospital admissions per 1,000 persons per year dropped from 5,292 to 2,172 during the first 6 months of the program. Hospital days per 1,000 per year for the same time period went down from 12,024 to 10,532. Emergency department visits per 1,000 for the same time periods were reduced from 543 to 272. During the most recent 6-month assessment, ED visits fell further to 151. Primary care outpatient visits increased 10 fold.</p> <p>In a separate one-year analysis of 152 patients using the clinic, total charges fell from \$16 million to \$12.3 million. This reflects an annual reduction in charges of almost \$25,000 per patient. Patient satisfaction is near perfect.</p>

PROGRAM	Boeing Intensive Outpatient Care Program (IOCP)
ORGANIZATION	The Boeing Company, Regence BlueShield, Everett Clinic, Valley Medical Center IPA, and Virginia Mason Medical Center, in Washington State. Pilot project 2007 – 2009, currently being expanded. ^{15,16}
POPULATION	<p>Patients come from the predicted highest cost quintile of Boeing’s Puget Sound employees and their adult dependents. 740 patients enrolled in the IOCP pilot; they had severe chronic illness and received primary care through Everett Clinic, Valley Medical Center IPA, or Virginia Mason Medical Center. Current PCPs could refer patients if they were in the highest cost quintile.</p> <p>Common diagnoses are hypertension, depression, chronic pain, obesity, diabetes, coronary heart disease, asthma, and COPD. The average patient has 3-4 chronic conditions.</p>
MODEL	Ambulatory Intensive Care Unit (a-ICU) model mixed with primary care model. For 2 of the provider organizations, there is a separate high-risk team for complex/high costs patients; this meant that patients had to leave their PCP. One of the 3 provider organizations opted to keep the patients with their existing PCP. Sites were paid a PMPM case rate to cover the additional services. The IOCP expansion involve the case rate plus shared savings.
TEAM	The care management team includes an experienced RN care manager who works with a physician, pharmacist, behavioral health professional, dietitian and physical therapy team.
CASELOAD	150-200 patients
24/7?	Yes

PROGRAM	Boeing Intensive Outpatient Care Program (IOCP)
CARE MANAGEMENT APPROACH	<p>All patients are provided with an RN care manager (health coach). The RN has motivational interviewing skills. At the two aICU sites, a physician working in the aICU is part of the team. An assessment is one and a shared care plan is developed between the patient and the care team to set priorities, goals, and concrete plans. The care plan is implemented, mainly by the RN care manager, through in-person, telephonic, and e-mail contacts. Patients are risk-stratified and intensity of care is based on risk. They are contacted according to need, at least once a month; they receive self-management support (health coaching) for their chronic conditions.</p> <p>Timely notification of ED visits and hospital admissions to the care management team is essential. Daily team planning sessions including direct involvement of specialists.</p>
GRADUATION	Do not know
MEASURES	<p>After 12 months, the first 276 patients in the pilot were matched with Boeing employees in the predicted high-cost quintile who did not participate in the program.</p> <ul style="list-style-type: none"> • Health care costs of IOCP participants vs. control group: 20% decrease from baseline. This was a net savings: reduced health care costs minus the cost of the program. The savings came from lower ED visits and hospital admissions. • Hospital admissions: 28% decrease. • Change in SF-12 physical functioning compared with baseline: 15%. • Improvement in mental functioning: 16%. • Participants feeling that care was “received as soon as needed”: 17.6% increase. • Average number of patient-reported workdays missed, 6 months -56.5% decrease.

PROGRAM	Chicago Housing First Program
ORGANIZATION	RCT at a public teaching hospital and a private nonprofit hospital in Chicago. Operated from 2003 to 2007 at 2 respite sites and 10 housing agencies. ¹⁷
POPULATION	Patients were randomized to two groups, 200 patients in the intervention group and 200 in the control group. 37% Medicaid, 8% Medicare, 55% uninsured. 36% HIV positive, 60% substance users. 27% of participants lived on the streets, 43% stayed in shelters, and 50% were temporarily staying with family or friends. Median duration of homelessness 30 months. 78% men, 78% African-American. Patients lack stable housing, have been hospitalized at least once, and have 1 or more chronic medical illnesses. Both usual care and intervention patients had an initial hospital admission that made them eligible for the study. Patients were ineligible if their hospital physician judged them incapable of self-care on hospital discharge.
MODEL	Housing first and social work case management at the housing site. It was not a primary care or aICU model. It was not a medical model at all. There was no medical intervention, though the case managers did provide care coordination to medical facilities.
TEAM	The case managers had master’s-level training in social work.
CASELOAD	20 or fewer active patients
24/7 ?	Do not know
CARE MANAGEMENT APPROACH	<p>Participants randomized to the intervention group received case management services from the on-site intervention social worker, including plans for discharge to a respite care facility for transitional care between hospitalization and stable housing.</p> <p>This was not a pure housing intervention; it was housing plus case management. The case management was provided in hospitals, respite care centers and stable and unstable housing sites. The housing was transitional following hospital discharge followed by placement in long-term housing. Case management was offered at the transitional and long term housing sites. The initial case management was provided by a hospital-based social worker who referred the intervention patients to transitional housing. Respite and housing case managers facilitated the participant’s housing placement and coordinated appropriate medical care, with substance abuse and mental health treatment referrals coordinated as needed. Each intervention participant had contact, at least biweekly, with his or her on-site case manager. The intervention case managers had weekly team meetings to coordinate the housing, social service, and medical care needs of participants. The housing intervention was based on the Housing First model, which encourages early placement in stable housing following a short transitional stay in respite care after hospitalization. The stable housing options were provided by 10 community agencies offering group living arrangements as well as apartments at single and scattered sites.</p>
GRADUATION	Not known
MEASURES	<ul style="list-style-type: none"> • Over 18 months there were 583 hospital admissions in intervention group, (1.93 per person per year) and 743 in usual care group (2.43 per person per year) P = .16. • Over 18 months, 2,635 hospital days in intervention group (8.74 days/person/year) and 3,500 in usual care group (11.44 days/person/year) P = .07. • Over 18 months, 787 ED visits in intervention group (2.61 visits/person/year) and 1,154 in usual care group (3.77 visits/person/year). P = .06 • After adjusting for baseline covariates, hospital admissions in intervention group were lower by 29% (P = .005), hospital days were lower by 29% (P = .01) and ED visits were lower by 24% (P = .03). <p>Physical functioning scores and mental health scores were not statistically different between the 2 groups. There was no difference in mortality between the two groups.</p>

PROGRAM	Seattle Housing First Program
ORGANIZATION	Seattle Downtown Emergency Services Center. A study was done from 2005 – 2007. ^{18,19}
POPULATION	Participants were drawn from a list of chronically homeless individuals who incurred the highest costs in 2004 for alcohol-related emergency services. In the past, homeless alcoholic patients were offered housing only if they were sober. In this program, these patients were offered housing whether or not they were sober. Many continued to drink after receiving the housing. 81 were provided with housing and 53 were wait-listed (no more housing units available) and served as a comparison group. 94% were male with mean age of 48 years. 39% white, 28% American Indian/Alaska Native, 10% African-American.
MODEL	Housing first, and case management at the housing site
TEAM	Social workers
CASELOAD	Do not know
24/7 ?	Yes
CARE MANAGEMENT APPROACH	The patients were offered individual housing units in a new facility at 1811 Eastlake. The facility had a 24-hour staff of social workers and other clinicians. The staff helped residents with medical and social services and worked with them to address behavioral issues.
GRADUATION	Do not know
MEASURES	Costs were compared between 95 individuals living at 1811 Eastlake and 39 individuals on the wait list for 1811 Eastlake, between November 2005 and 2007. Median costs for the housed individuals decreased from \$4,066 per month to \$1,492 per month after 6 months at Eastlake, dropping to \$958 after 12 months. Wait-listed individuals also had a substantial cost reduction, from \$3,318 per month to \$1,932 after 6 months. Housed individual costs dropped significantly more than wait-listed individuals' costs. After factoring in the costs of the program (\$1,120 per person per month), there was a savings of \$2,449 per month per person in the program. Costs continued to fall with more time in housing. Also, housed individuals had a 30% reduction in number of alcoholic drinks per day. The Seattle Eastlake project reported 41 percent lower Medicaid costs for residents after one year of supportive housing.

PROGRAM	Camden Coalition of Health Care Providers
ORGANIZATION	In 2002, a small group of Camden, New Jersey primary care providers formed the Camden Coalition of Healthcare Providers. The Coalition compiled a database to analyze hospital utilization and found that in one year, nearly half of the city's residents utilized an ED or hospital. 80% of the costs were spent on 13% of the patients, and the Coalition, led by family physician Jeff Brenner, started a program, which is very active today, to improve the care and reduce the costs of high-utilizing patients. ^{20,21}
POPULATION	In 2007, Dr. Brenner held a meeting with a few social workers and emergency-room doctors from hospitals around the city. He showed them the cost statistics and use patterns of the most expensive one percent. 900 people in two buildings accounted for more than four thousand hospital visits and about two hundred million dollars in health care bills over six years. Patients are identified for the program using a Health Information Exchange that can deliver daily information about hospitalizations. The primary target population is Camden residents with two or more inpatient admissions in the last six months. Additional targeting criteria include two or more chronic-disease-related admissions and polypharmacy. Patients are not accepted if they have a pregnancy-related admission, oncology-related admission, psychiatric primary diagnosis without chronic disease, post-surgical acute condition, and diagnosis of a progressive disease for which there is no treatment.
MODEL	This is a community-based model, with care management teams doing home visits, reaching out to homeless patients on the street, and helping patients access primary care.
TEAM	Each care management team consists of two licensed practical nurses (LPN), a community health worker (CHW), and two AmeriCorps volunteer health coaches. In addition, there is a registered nurse (RN) who provides clinical support to the teams and social work support provided by a master's level social worker and an intervention specialist who is solely focused on housing barriers. Many of the care management team members have grown up or currently live in Camden. Their main function is to assist clients to navigate the system on their own. They also accompany patients to visits until such time as the patients can do so on their own.
CASELOAD	20-34 active patients per care management team
24/7 ?	No

PROGRAM	Camden Coalition of Health Care Providers
CARE MANAGEMENT APPROACH	<p>Dr. Brenner: <i>“High-utilizer work is about building relationships with people who are in crisis. The ones you build a relationship with, you can change behavior. Half we can build a relationship with. Half we can’t.”</i> In general, care is provided wherever the patients are.</p> <p>Once a patient is identified, a member of the team visits him or her in the hospital to enroll him or her in the program. In the beginning stage of the program, the goal of the Care Management Team is to identify the medical and/or social needs of the patient. The team can perform a range of interventions based on the individual needs of each patient. When the patient’s medical needs are determined, the team works to help connect the patient to their primary care doctor and make an initial appointment within seven days of the patient’s discharge from the hospital. The team provides transportation, accompanies the patient to appointments, and coordinates care. The goal is to eventually empower the patient to handle his or her own health care needs.</p> <p>Home and community-based visits are a central part of the program. Team members assess the home situation, address safety or environmental concerns, conduct medication reconciliation and troubleshoot medication/adherence issues. The flexibility of care management team staffing structure ensures the right mix of people to address a variety of medical and social needs in addition to building trust and rapport with enrolled participants.</p> <p>In addition to medical support, the Care Management Team offers social support. The social worker may also help a patient obtain Social Security disability, food support and housing.</p> <p>Care Management Teams meet each day to review every patient’s needs and goals. When a patient is first enrolled, the team visits the patient each week and attends his or her medical appointments. This provides much-needed social support, and gives the team time to completely understand the patient’s medical needs and forge a relationship between the patient and his or her primary care physician. When a patient is medically and socially stable—ideally within six to eight weeks—the nursing members of the team transition the patient to a health coach or community health worker, who provides ongoing support and guidance. http://www.camdenhealth.org/what-does-health-coaching-entail/</p>
GRADUATION	The attempt is to increase patients’ ability to self-manage. Patients can graduate from the program if they are able to handle their own health care needs.
MEASURES	Currently planning an RCT for 2014.

PROGRAM	Atlantic City Special Care Center
ORGANIZATION	The AtlantiCare hospital system, started in 2007. ^{22,23}
POPULATION	The patients are low-income union members, working in the Atlantic City casinos, with chronic diseases and in the top 10% of predicted health spending. The chronic conditions tended to be diabetes, hypertension, coronary heart disease, COPD, CHF, and depression. As of 2010, the Special Care Center (SCC) served 1,200 patients.
MODEL	This is an aICU model with patients leaving their PCPs to receive all their care at the Special Care Center. Payment was changed from fee-for-service to capitation, allowing for a radically different team composition.
TEAM	2 physicians, 2 nurse practitioners, part-time psychiatrist, part-time pharmacist, a RN, a social worker, and 8 health coaches, who are mostly medical assistants and licensed practical nurses (LPNs), culturally and linguistically concordant with the patients. Almost all the coaches speak English plus either Gujarati, Hindi, Spanish, French Creole, Vietnamese, Cantonese or Portuguese. The coaches are hired for their caring attitude and receive virtually all their training after being hired by the SCC.
CASELOAD	In 2008 the entire a-ICU was caring for 800 patients. Much of the care is provided by the health coaches, who each managed a panel of 80-150 patients.
24/7 ?	Yes. A key concept has been to change the patients’ habit of dialing 911 if they had a problem by having the health coach program patients’ cell phones to speed dial the SCC’s 24-hour hotline.
CARE MANAGEMENT APPROACH	<p>New patients take part in a welcome visit where they meet with a physician and a health coach for an initial examination and orientation and to create a shared care plan. The health coach collects the bulk of the patient history including medication list and stays in the entire visit with the physician.</p> <p>Each day starts with a team huddle where the team discusses medical and psycho-social issues. In 45 minutes, the staff does a run-through of everyone’s patients, reviewing the requests that patients make by e-mail or telephone, the plans for the ones who have appointments that day, planning follow-up phone calls for patients with acute issues, reviewing lab tests, and addressing problems.</p> <p>Health coaches are responsible for implementing the care plan, meeting independently with patients, attending physician visits, helping patients to set goals and manage their own care, monitoring patients’ ability to adhere to their plan, and helping them to overcome barriers to meeting their health goals. Home visits are done as needed; coaches phone or e-mail patients.</p>

PROGRAM	Atlantic City Special Care Center
	The aICU team is co-located in a single open space.
GRADUATION	Do not know
MEASURES	<p>For the year prior to enrollment in the SCC, total health care spending for patients enrolled in the SCC rose 31%; this dropped to a 4% annual growth rate in the year after enrollment, which compared with a 12% increase for a similar non-SCC population. Compared to the comparison group, total cost per patient dropped by 25%. This did not factor in the costs of the program which is higher than usual primary care due to the elaborated team. In addition, pharmacy costs were higher.</p> <p>Inpatient days declined by 30%, length of stay by 8%, admissions by 24%, readmissions within 30 days of discharge by 80%, and ED visits by 22% in the year after enrollment compared with the year before enrollment. The average cost was 15% less than for the comparison group of non-enrollees.</p> <p>For 447 patients enrolled in 2009, relative to the similar control group, SCC patients had 41% lower inpatient admissions, and 48% lower ED visits. Net spending (savings minus cost of the program) was \$208 per month per enrollee lower than controls, a 12% reduction in total spending.</p> <p>Patient satisfaction increased from 50-60% before entering the SCC to over 90% after. After 6 months, the % of patients with hypertension control went from 58% to 82% with an average systolic blood pressure drop of 26 points. Patients with LDL cholesterol above 160 saw an average 50 point drop. 63 percent of smokers with heart and lung disease quit smoking after 6 months in the program. The proportion of diabetes patients with A1c > 9 dropped from 20 to 12%; those with A1c less than 7 rose from 41 to 53%. Prescription fill rates (medication adherence) averaged 98% compared with the community-wide average of 70-80%.</p>

PROGRAM	West Los Angeles VA Homeless PACT Team
ORGANIZATION	On April 30, 2012, the West Los Angeles VA opened its Homeless PACT (HPACT) clinic (PACT is the national VA system's primary care team model: Patient-Aligned Care Teams).
POPULATION	<p>The West Los Angeles HPACT team sees extremely complex patients. Complex chronic care can be viewed as congestive heart failure, diabetes, hypertension, and depression within one patient. This view of complexity needs to be extended in the case of homeless veterans. Many have several of the above conditions plus the triple whammy of homelessness, serious mental illness, and substance abuse – a combination that requires far more time and effort. The average number of diagnoses addressed per visit is 6.3. The most common diagnoses for the initial 120 patients are homelessness or precarious housing, hypertension, chronic pain, hepatitis C, depression, alcoholism, and tobacco use.</p> <p>The HPACT team clinic is right next to the emergency department. Homeless or precariously housed patients coming to the ED who do not have a serious acute problem are walked over to the clinic during the hours when it is open. The main criterion for enrolling is homelessness/precarious housing rather than other diagnoses/high utilization.</p>
MODEL	This is an aICU model, with the goal of enrolling patients to leave their primary care team (if they have one) and remain for their total care in this clinic for high-utilizing homeless patients.
TEAM	Primary care physician, front desk scheduler/clerk, RN, and LVN. A social worker nearly is available to see patients, but is not full-time on the team.
CASELOAD	The clinic plans to care for 200 patients at any one point in time.
24/7 ?	No
CARE MANAGEMENT APPROACH	As an aICU, this HPACT team provides total primary care for its patients, and also provides referral to housing, social service, substance/alcohol services. Visits are at least one hour (often 2 hours including nursing and physician and social worker involvement) so that many issues can be handled in one visit. The team is co-located in one space so that there is constant discussion about each patient among the team. The team does not offer services when the clinic is not open, but interacts with other services in the same facility including a housing assistance unit. After the patient visit the entire team meets with the patient to discuss the care plan.
GRADUATION	It is too early in the program to know.
MEASURES	It is too early for measures.

PROGRAM	Stanford Coordinated Care Program
ORGANIZATION	Stanford University; program opened May 2012.
POPULATION	<p>This is a program for Stanford University employees and their dependents with multiple chronic health conditions. Patients are chosen in one of 4 ways: (1) referral from physicians or practice managers; (2) self-referral; (3) high-utilizing patients based on the predictive model designed by Milliman (most predictive models are only ~30% predictive of future high-utilization); or (4) patients with 5 or more chronic medications, 3 or more specialists, 2 ED visits in a year, or one hospital admission in a year.</p> <p>By late June 2013, the program had 137 patients of whom 2/3 were self-referred – had heard about the program and requested to join. A few referrals come from physicians or practice managers. So far this is not an inpatient transitions program, although there are plans to begin that approach. Diabetes and chronic pain are among the more common diagnoses, but many patients have complex, single conditions that are either difficult to diagnose (e.g., connective tissue or neurologic disorders) or present major obstacles to living a healthy life.</p>
MODEL	This is a hybrid model, part aICU, part practice based care management. The aICU model is called Primary Care Plus and includes 4/5 of the patients so far. The model in which care managers go to other practices to provide care management is the Care Support model; the other practices can be either primary care or specialty practices. For the Care Support model, the care manager is shared between the RN and LCSW, who are stationed at the aICU site. The program receives capitation and shared savings payment, not fee for service.
TEAM	Three physicians are part time (1.6 FTE). The team has 3 patient care coordinators (who are like health coaches), drawn from non-professional people like medical assistants. Supporting the team are the RN, an LCSW, a physical therapist who is a chronic pain specialist, and a clinical pharmacist who is also a certified diabetes educator. Another RN will be hired when the patient load increases.
CASELOAD	The program goal is to have 1000 patients by end of year 3. Case load estimate is 100-150/care coordinator, a physician panel of about 400.
24/7 ?	MDs are on call 24/7, which is felt to be important to address patient fears and concerns at night that may result in an unneeded ED visit. The important thing is that the patient knows the person he/she is calling, which is very different from the typical RN advice line in which the patient does not know whom he/she is talking to and the RN does not know the patient.
CARE MANAGEMENT APPROACH	<p>The program interviewed patients to find out exactly what they wanted the care management team to do. The program looks for the 20% of issues that account for 80% of cost and utilization.</p> <p>Each patient has an initial 2 hour intake/assessment. The patients are given 2 assessment instruments, the Patient Activation Measure (PAM) and the domains assessment tool pioneered by CareOregon. Patients are put into PAM category 1 through 4 (1 is unengaged, 4 is totally engaged). The domains include: (1) social isolation; (2) care access/coordination/trust issues; (3) medical trajectory/complexity; and (4) behavioral issues/self management support.</p> <p>Based on the PAM/domains assessment, patients have a care plan that is based on the patient's goals. For example, patients with PAM 4 do not need action plans; they do them all the time. They may need care coordination amongst multiple specialists. Patients with PAM 1 may receive a very simple action plan with the goal being success, but may have little need of specialists. Different workflows are developed for each patient based on the PAM/domains results.</p> <p>The care coordinators use a pre-visit/visit/post-visit/between-visit model. They meet with patients before a physician visit to generate an agenda, participate in the visit as a scribe, have a post-visit for action plans and closing the loop, and touch patients by phone or e-mail as needed by the intensity of the patient's issues. They may accompany patients to procedures, help them navigate, and provide emotional support. Care coordinators will do home visits if indicated, though for this non-Senior, non-Medicaid population this may be less necessary. Expansion into Medicare is anticipated in 2014. Care coordinators spend a lot of time on medication management – understanding and addressing barriers to adherence. They are authorized to refill chronic meds per protocol.</p> <p>The care coordinators spend a lot of time listening. They received motivational interviewing training, closing the loop training, and goal setting training based on the PAM. In the pre-visit they do PAM (re-checked very 6 months), SF 12, PHQ 2/9, domain, pain questions, diet and activity questions, and a presenteeism scale for employers.</p> <p>The RN visits inpatients every day and helps with their care coordination post-discharge, following the Coleman care transitions model. Home visits are done if indicated. She also does the Care Support work in other practices.</p> <p>The pharmacist CDE sees patients with diabetes and asthma, and also "treats to target," adjusting medication via protocol for hypertension and lipids as well as diabetes. The pharmacist leads group visits for diabetes in combination with the RN.</p> <p>Chronic pain group visits will follow in fall 2013, led by the physical therapist, who practices "Integrative PT" using the Feldenkrais Method, focusing on enhancing healthy behaviors in breathing, movement, and "mindfulness" rather than working on the painful part alone. PT has been a part of the care plan for 40% of all patients in the program.</p> <p>A Licensed Clinical Social Worker does short-term counseling, care facilitation and counseling about end of life care. She also facilitates the Patient Advisory Council that meets bimonthly.</p>

PROGRAM	Stanford Coordinated Care Program
	Depending on the domain assessment, the physicians might be more involved (if disease complexity) or the care coordinators more involved (if self management support/behavior issues). The physicians also attend high-import specialty visits with their patients, both in person and virtually. They also see acutely ill patients on a same-day basis.
GRADUATION	Probably many patients will not graduate, though some will, and be followed via lower level of engagement. The diseases these patients have tend to be progressive, and since most of the patients have switched to the program as their primary care practice, the challenge will be to continue to deliver cost-effective care by maintaining lower spending via better outcomes rather than producing “savings” per se.
MEASURES	<p>There are no year-over-year data to report yet, but many metrics are being followed. The program has partnered with IT and Clinical and Business Analytics to develop a “patient-centered” dashboard to identify patients at risk (a departure from the typical disease-based registries prevalent in most electronic health records currently). Ambulatory sensitive admits, ED visits, bed days, and most importantly total cost of care are followed. Additionally, a log is kept of “Avoiding Avoidable Care” such as admits and ED visits avoided, tests and procedures avoided.</p> <p>Over 50 clinical measures (such as A1c, BP, SF 12, HEDIS measures) are put into the red, yellow or green categories with each measure having defined levels for red, yellow or green. The key indicator to follow is how many have gone from red to yellow to green. The program looks for improvement rather than absolute numbers. Patients with a lot of red are seen more. This data is also shared with patients, leading to what the program calls the “Visine Moment” – when the patient sees what they have to accomplish to “get the red out”.</p>

PROGRAM	CareMore
ORGANIZATION	CareMore started as an integrated medical group and became an insurer/provider mainly operating in Southern California. CareMore specializes in providing care for complex elderly patients with high costs. In 2011, CareMore was purchased by the large insurer Wellpoint. ^{24,25}
POPULATION	Patients must be enrolled in one of CareMore’s insurance plans. Using predictive modeling, laboratory data, physician referrals, and patient self-identification, CareMore identifies the patients at highest risk for high costs and enrolls them in one of CareMore’s centers. The average age of CareMore patients is 72, 45% are Hispanic and 50% have an annual income below \$30,000. Most patients are on Medicare, with 20% dual eligibles (Medicare and Medicaid).
MODEL	Mainly an aICU model with care centers for high-utilizing patients. The patients with their own PCP have their care co-managed between the CareMore extensivist and PCP.
TEAM	Nurse care managers, nurse practitioners, medical assistants, and physicians called extensivists who provide inpatient management for all hospitalized CareMore patients along with post-hospital outpatient management for the sickest 5% of patients. Each NP is paired with 2.5 medical assistants who perform clinical tasks.
CASELOAD	The hospital and CareMore center management of 4000-5000 high-risk patients is done by 2 extensivist physicians, 2-4 NPs, 2-3 RN care managers, 14 MAs, a nutritionist, social worker and pharmacist.
24/7 ?	No.
CARE MANAGEMENT APPROACH	<p>At the CareMore Centers, the team (mainly NP plus MAs) work clinically to control the patients’ chronic conditions. Home monitoring of blood pressures, weights, and blood sugars are transmitted to nurse care managers, and the patient’s NP calls if weight or blood pressure has gone up; medications are titrated according to protocol. Nurse care managers are the trusted go-to people whom patients can call rather than calling 911 when a problem arises. Care manager extenders, who may be medical assistants, assist with phone management, durable medical equipment, and home visits. Two care manager extenders assist each nurse care manager.</p> <p>One physician and one NP are dedicated exclusively to home visits; they are backed up by a social worker, case manager, mental health clinician, and attorney. Many patients cared for by this team have social and family problems.</p> <p>On discharge from the hospital, patients are color coded as red (high needs, with a phone call within 24 hours and a CareMore Center appointment with their extensivist within 48 hours of discharge); yellow (phone call within 48 hours and extensivist appointment within a week); and green (follow-up with primary care physician). Patients seen by the extensivist after discharge may be co-managed by the PCP and extensivist indefinitely. NPs support the extensivist in caring for these patients in the CareMore center.</p>
GRADUATION	Patients graduate when their chronic disease measures have reached target goals. They may re-enter if their conditions worsen.
MEASURES	<p>Multiple clinical and utilization outcomes are tracked. For patients at highest risk, per member per month total healthcare costs are \$2250 compared with Medicare’s expectation for similar risk patients of \$3500. For patients in the intermediate risk category, CareMore’s average is \$1000 pmpm compared with expected \$1500 pmpm. Thirty day re-hospitalization rates are 13.6% compared with 20% for Medicare as a whole. CareMore’s risk-adjusted total per capita health spending is 15% below the national Medicare average.</p> <p>CareMore seniors with diabetes have an average A1c of 7.08 and the amputation rate is 78% less than the national average. Hospitalizations for end-stage renal disease are 42% less than the national average.</p>

PROGRAM	Hospital to Home Program, New York City Health and Hospitals Corporation
ORGANIZATION	Bellevue Hospital Center (BHC), Woodhull Hospital and Mental Health Center, and Elmhurst Hospitals, all a part of Health and Hospitals Corporation, the New York City public hospital system. ^{26, 27} The program began enrolling patients in August 2009 and ended in March of 2012, as part of the New York State Department of Health's Chronic Illness Demonstration Program. At that time, existing patients remained in an expanded version of the program as a part of the federally financed Health Homes reimbursement mechanism.
POPULATION	Eligible patients were provided in list form from the New York State Department of Health (NYS DOH). All were fee-for-service Medicaid beneficiaries. Approximately 520 patients were cumulatively enrolled over 2.75 years at 3 hospital sites. Patients were identified by the NYS DOH as being at high risk for hospital readmission in the following 12 months by a predictive algorithm based on diagnoses and service utilization history in the prior 3 years. Dual-eligible patients (Medicaid and Medicare) were excluded.
MODEL	Combination of ED-based, community-based, housing first, and hospital discharge models.
TEAM	<ul style="list-style-type: none"> • Community-based care managers with a minimum of a high school education; • Master's level social worker; • Housing coordinator (via subcontract with local homeless services provider); • Part-time internists at 2 sites provided care for enrolled patients with no PCP; and • Emergency department physician (no direct patient care--project director).
CASELOAD	25 patients per care manager. Social workers supervised from 4-8 care managers depending on the hospital site. The housing coordinator worked across all sites to maximize access to any available housing opportunities for all enrolled patients who were homeless in the street or in shelter at the time of enrollment. The housing coordinator had from 40-60 patients on caseload at any given time and worked closely with the care coordinators.
24/7 ?	Yes. Care managers participated in an after-hours and weekend "on-call system". Each care manager took 1 wk of call at a time and covered any after hours calls across all 3 sites. Care managers were expected to provide phone triage while awake and to follow-up with the patient's assigned care manager the next work day to convey any messages or actions taken.
CARE MANAGEMENT APPROACH	<ul style="list-style-type: none"> • Care managers attempted to find patients either in the hospital system or in the community. Email alerts were sent to care manager phones when eligible or enrolled patients entered the hospital system. • In-depth interviews conducted to identify immediate and long-term needs. Care managers helped to arrange housing, primary care, transportation to and advocacy during appointments, medication management, entitlements enrollment, improved connections to psychiatric and substance use treatment, and home visits. • Housing First model (sobriety not a prerequisite for housing), no patients discharged from hospital to street or shelter. The housing coordinator worked with patients to determine housing eligibility, apply for permanent housing and facilitate any existing application processes. • Post-discharge, care managers coordinated appointments, accompanied and advocated for patient and communicated with ED staff during future visits. Pre-paid cell phones and expedited medical appointments were provided. • Average of 11 hrs/month per patient care management time. Mean number of contacts between patients and team was 17.6/month with average length of contact 30 minutes.
GRADUATION	All patients remained in the program unless they lost Medicaid coverage or met other New York State Department of Health criteria for disenrollment including aging into Medicare, prolonged long-term care or prison stays.
MEASURES	<ul style="list-style-type: none"> • Baseline and follow-up interview questions about medical, behavioral, legal, and social domains using validated surveys (e.g. SF-12, PAM) and open ended questions • Medicaid encounter data and billing data • Housing statistics • Preliminary analysis indicates that ED and inpatient use were reduced comparing pre and post enrollment periods for patients enrolled for at least 12 months, and reductions in this use were seen in the 2nd 6 months post enrollment. Reductions appear to be the greatest for patients who were homeless at initial enrollment and were subsequently placed in supportive housing.

Acknowledgements

Rachel Paneth-Pollak, Roz Murray, Diana DeVore, Liz Davis and Danielle Hessler assisted with research for the report. Individuals associated with the various programs provided valuable information: Jen Abraczinskas (Camden Coalition), Ann Lindsay and Alan Glaseroff (Stanford Coordinated Care), Paul Johnson (Hennepin County), Steven Counsell (GRACE), Denise Levis (CCNC), Rebecca Ramsay (CareOregon), and Maria Raven (USC SF, formerly NYC HHC).

Additional Resources

This brief is a product of CHCS' *Rethinking Care Program*, which is developing and testing new strategies to improve health care quality and control spending for Medicaid's highest-need, highest-cost populations. It is made possible by Kaiser Permanente Community Benefit. For more information, visit www.chcs.org.

About the Center for Health Care Strategies

The Center for Health Care Strategies (CHCS) is a nonprofit health policy resource center dedicated to improving health care access and quality for low-income Americans. In collaboration with state and federal agencies, health plans, providers, and consumer groups, CHCS pursues innovative and cost-effective strategies to better serve Medicaid beneficiaries. Its program priorities are: enhancing access to coverage and services; advancing quality and delivery system reform; integrating care for people with complex needs; and building Medicaid leadership and capacity.

Endnotes

- ¹ T. Bodenheimer, R. Berry-Millett. *Care Management for Patients with Complex Healthcare Needs*. Robert Wood Johnson Foundation, 2009.
- ² S. R. Counsell et al. "Cost Analysis of the Geriatric Resources for Assessment and Care of Elders Care Management Intervention." *Journal of the American Geriatric Society* (2009);57:1420-1426.
- ³ Healthcare Utilization of CCNC (Community Care of North Carolina) Enrolled Population, 2007-2010. Treo Solutions, June 2012.
- ⁴ R. Cosway et al. "Analysis of Community Care of North Carolina Cost Savings." *Milliman Client Report*, December 2011.
- ⁵ K.W. Linkins et al. *Frequent Users of Health Services Initiative: Final Evaluation Report*. The Lewin Group. August 2008.
- ⁶ Treo Solutions, op cit.
- ⁷ Community Care of North Carolina: Putting Health Reform Ideas into Practice in Medicaid. Kaiser Commission on Medicaid and the Uninsured, May 2009.
- ⁸ Enhanced Primary Care Case Management System Legislative Report. North Carolina Community Care Networks, Inc. Quarterly Report as of January 1, 2011.
- ⁹ B.D. Steiner et al. "Community Care of North Carolina: Improving Care through Community Health Networks." *Annals of Family Medicine* (2008);6:361-367.
- ¹⁰ Cosway et al., op cit.
- ¹¹ S. R. Counsell et al. "Geriatric Care Management for Low-Income Seniors." *Journal of the American Medical Association* (2007);298:2623-2633.
- ¹² S. R. Counsell et al. "Cost Analysis of the Geriatric Resources for Assessment and Care of Elders Care Management Intervention." *Journal of the American Geriatric Society* (2009);57:1420-1426.
- ¹³ S. Klein, D. McCarthy. *CareOregon: Transforming the Role of a Medicaid Health Plan from Payer to Partner*. The Commonwealth Fund, July 2010.
- ¹⁴ E.F. Taylor et al. *Evaluation of the Medicaid Value Program: Health Supports for Consumers with Chronic Conditions*. CareOregon Case Study. Mathematica Policy Research, August 14, 2007.
- ¹⁵ B. Schilling. *Purchasing High Performance: Boeing's Nurse Case Managers Cut Per Capita Costs by 20 Percent*. The Commonwealth Fund, March 2011.
- ¹⁶ A. Milstein. "Are Higher-Value Care Models Replicable" *Health Affairs Blog*, October 2009.
- ¹⁷ L.S. Sadowski et al. "Effect of a Housing and Case Management Program on Emergency Department Visits and Hospitalizations among Chronically Homeless Adults." *Journal of the American Medical Association* (2009);301:1771-1778.
- ¹⁸ M.E. Larimer et al. "Health Care and Public Service Use and Costs Before and After Provision of Housing for Chronically Homeless Persons with Severe Alcohol Problems." *Journal of the American Medical Association* (2009);301:1349-1357.
- ¹⁹ B.M. Kuehn. "Supportive Housing Cuts Costs of Caring for the Chronically Homeless." *Journal of the American Medical Association* (2012);308:17-19.
- ²⁰ A. Gawande "The Hot Spotters." *The New Yorker*, January 24, 2011, p. 41-51.
- ²¹ T. Goldsmith. "Camden's Roadmap to Reform." *Health Affairs Blog*, March 2011.
- ²² L. Blash et al. *The Special Care Center – a Joint Venture to Address Chronic Disease*. Center for the Health Professions. November 2011.
- ²³ Primary Care Physicians and Health Coach Teams Improve Outcomes and Reduce Costs for Complex Patients. AHRQ Health Care Innovations Exchange.
- ²⁴ A. Milstein, Gilbertson E. "American Medical Home Runs." *Health Affairs* (2009);28:1317-1326.
- ²⁵ T. Main, A. Slywotzky. "The Quiet Health-Care Revolution." *The Atlantic*, November 2011.
- ²⁶ M.C. Raven et al. "Medicaid Patients at High Risk for Frequent Hospital Admission: Real-Time Identification and Remediable Risks." *Journal of Urban Health* (2008);86:230-241.
- ²⁷ M.C. Raven et al. "An Intervention to Improve Care and Reduce Costs for High-Risk Patients with Frequent Hospital Admissions: A Pilot Study." *BMC Health Services Research* (2011);11:270.