



The  
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Health and  
Social Care

Designing a High-Performing Health Care  
System for Patients with Complex Needs

# Ten Recommendations for Policymakers

**The Commonwealth Fund International Experts  
Working Group on Patients with Complex Needs**

*Expanded and Revised Edition*  
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# The Commonwealth Fund International Experts Working Group on Patients with Complex Conditions

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Health care costs are heavily concentrated among people with multiple health problems. Often, these are older adults living with frailty, advanced illness, or other complex conditions. In 2014, the New York–based Commonwealth Fund, a private, independent foundation, established the International Experts Working Group on Patients with Complex Needs through a grant to the London School of Economics and Political Science. The group’s purpose was to outline the prerequisites of a high-performing health care system for “high-need, high-cost” patients and to identify promising international innovations in health care delivery for meeting needs of these patients. Drawing on international experience, quantitative and qualitative evidence, and its members’ collective expertise in policy and program design, implementation, and evaluation, the international working group sought to articulate the principles that underpin high performance for this complex population in health systems around the world.

What follows are the group’s top recommendations based on these principles. All 10 present challenges, with some requiring profound paradigm shifts—for instance, away from disease-specific care delivery and toward more patient-centered approaches, or away from the single-provider model and toward cooperation and teamwork. Their implementation, however, has the potential to transform care and quality of life for millions. The selected international models that follow the recommendations represent some of the promising frontline care innovations that illustrate the principles laid out here.

## **RECOMMENDATION 1**

### **Make care coordination a high priority.**

Because patients with complex needs receive treatment from a wide range of providers, their care often becomes fragmented. This can result in more hospitalizations and lower patient satisfaction. What these patients need is a dedicated person who is responsible for coordinating all their care. This could be the patient’s primary care physician, but increasingly health care organizations are employing staff specifically tasked with coordinating treatment for complex patients. Although better coordination should lead to better care, it will less often save money. It is therefore especially important to identify and remove financial disincentives to care coordination.

## **RECOMMENDATION 2**

### **Identify patients in greatest need of proactive, coordinated care.**

Several methods have been developed to identify patients with complex needs. Generally they use data drawn from medical records, sometimes supplemented by professional judgment. The aim is to identify patients at risk for poor outcomes, such as unnecessary hospital admissions, and provided targeted, proactive, team-based care. While a number of validated models exist to predict patients’ health care utilization and costs, individual countries will likely need to adapt these models based on the types of data they have available.

### **RECOMMENDATION 3**

#### **Train more primary care physicians and geriatricians.**

In most OECD member countries, the number of subspecialists has increased at a much higher rate than the number of generalists. This trend has led to fragmented care and needs to be reversed. To meet the needs of aging populations, more family physicians and geriatricians, in particular, will be needed. Medical school curricula and training programs should be altered to support this shift.

### **RECOMMENDATION 4**

#### **Facilitate communication between providers—for example, through clinical record integration.**

It is important that providers treating a patient with complex needs are able to share important data about that patient; this ensures clinicians have the information they need, when they need it. Ideally, this is accomplished by a single electronic record for all the patient's medical care. Also critical is good and timely provider communication, including the prompt relay of information to the primary care physician following hospitalization and specialist visits and the sharing of care plans with after-hours and emergency services.

### **RECOMMENDATION 5**

#### **Engage patients in decisions about their care.**

For the patient with multiple health conditions, treatment that adheres to evidence-based guidelines for each individual condition can lead to an unacceptable burden of treatment, adverse interactions between treatments, and risks from polypharmacy. Patients with complex conditions need to be part of an open discussion of the benefits and risks of individual treatments. Such a process allows them to bring their own needs, preferences, and hopes into the treatment conversation.

### **RECOMMENDATION 6**

#### **Provide better support for caregivers.**

Elderly people and those with complex needs often receive care from family members and friends. They are usually unpaid and often provide support around-the-clock. Health services need to take steps to identify and support these informal caregivers. Support might include respite care to provide relief for caregivers and assistance to help them look after their own health.

### **RECOMMENDATION 7**

#### **Redesign funding mechanisms to meet patients' needs.**

Current funding mechanisms and payment incentives often exacerbate the problems of fragmented care. For example, fee-for-service encourages the overprovision of specialist services; capitation- and salary-based payments may lead to undertreatment; and quality incentives tend to prioritize only those aspects of care that are most easily measured. Payments systems for complex patients need to be redesigned so that they reduce barriers to collaboration, adequately compensate for the complexity of cases treated, and incentivize hospitals to work with community providers.

## **RECOMMENDATION 8**

### **Integrate health and social services, and physical and mental health care.**

The separation of health and social care fails to recognize some patients' closely related needs for both types of care. Constrained social service spending may also lead directly to inefficient use of health care resources—for example, when patients are unable to be discharged from the hospital because of a lack of support available in the community. Care for patients with complex needs therefore requires close cooperation between the two sectors.

Failure to integrate physical and mental health care also causes problems for patients with complex needs. Care for mental health must be integrated with physical health care, with multidisciplinary teams ensuring that physical and mental health problems are addressed together in a timely fashion.

## **RECOMMENDATION 9**

### **Engage clinicians in change and train and support clinical leaders.**

Implementing these recommendations will challenge notions of professional autonomy, established beliefs, and engrained ways of working. Clinical leadership is key to delivering successful change, and the clinicians leading change need support from local managers to ensure that local administrative systems and budgetary arrangements do not stifle change. Clinicians may also benefit from formal leadership training and opportunities to meet with peers on a regular basis.

## **RECOMMENDATION 10**

### **Learn from experience and scale up successful projects.**

Different solutions will suit different environments. Policymakers and health care managers should provide opportunities for sharing experiences and learning from success as well as failure. It is important to understand that successful projects tend to develop iteratively over time—and sometimes over a long period.

CANADA

## Mount Sinai Hospital Acute Care for Elders (ACE) Strategy

**LOCATION** Toronto, Ontario, Canada

**YEAR ESTABLISHED** 2010

**BACKGROUND** Mount Sinai Hospital developed a comprehensive, integrated approach to improve care for hospitalized older adults and older adults at high risk of hospitalization, particularly because of functional, cognitive, social, or other problems.

**OBJECTIVE** To improve the delivery and quality of care, patient and system outcomes in all older patients, and those older patients at especially high risk of poor outcomes.

**PATIENTS TARGETED** All patients age 65 and older admitted with an acute medical condition. High-risk patients are identified in emergency department (ED) based on having any three or more of: 1) recent decline in functional abilities; 2) recent change in cognition or behavior; 3) geriatric syndrome (e.g., falls, incontinence, acute or chronic pain); 4) complex social issues; or 5) Identification of Seniors at Risk (ISAR) score  $\geq 2$ . Complementary community-based programs also identify and support high-risk patients. Program enrolled approximately 10,500 patients between 2010 and 2015.

### KEY FEATURES AND INTERVENTIONS

ISAR screening for all older ED patients, with additional support from geriatric emergency management nurses. High-risk medical patients are prioritized to be cared for under Acute Care for Elders (ACE) protocol and, when possible, by designated ACE inpatient medical unit. All older patients have access to hospitalwide consultation liaison services in geriatrics, psychiatry, and palliative medicine and to volunteer-based Hospital Elder Life Program (HELP). All professionals are educated in geriatric care. Additional models strengthen community care and improve care transitions; Integrated Client Care Program provides intensive care coordination for targeted high-risk/high-use patients, while community outreach teams provide short-term home- and community-based supports to patients at risk of

losing independence. ACE strategy integrates these interventions to create seamless, interprofessional, technology-enabled integrated team-based delivery model spanning the care continuum.

**INFORMATION SYSTEMS** Geriatricized order sets and care protocols to support safer evidence-based care; tracking systems to monitor flow of ACE patients throughout Mount Sinai Hospital in real time and support timely transfer to ACE unit; secure e-mail notification and flagging systems to allow primary care, home care, emergency, and inpatient care providers to communicate effectively; and risk identification tools (ACE Tracker) to support early identification of high-risk patients.

### FINANCING AND PAYMENT METHODS

Usual funding through global block payments for hospitals and other community-based agencies. Physicians paid fee-for-service; other professionals are salaried. Hospital budget structures create incentives to reduce admissions and length of stay. No model-specific incentives.

**EVALUATION METHODS** Ongoing quarterly performance tracking system, using balanced scorecard and regional benchmarking to identify areas for improvement. Pre/post implementation comparisons.

**EVALUATION RESULTS** Comparing pre-implementation and post-implementation periods, there was 53 percent overall increase in annual admissions of patients age 65 and older within Toronto's fast-growing population (due to trend of increasing ED visits). Mount Sinai has maintained region's lowest admission rate of older patients—25 percent, 18 percent lower than regional admission rate. For those admitted to hospital, there was 28 percent decrease in mean length of stay; 13.4 percent decline in readmissions; reduction in "alternate level of care" ("bed blocker") days per patient of 20 percent; and increase in patients discharged directly to home. Average direct cost of care per patient reduced by 23 percent, and general inpatient medical beds reduced by 18.2 percent.

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ENGLAND

## Early Supported Discharge (ESD) for Stroke Patients

**LOCATION** England

**YEAR ESTABLISHED** 1993

**BACKGROUND** After a stroke, patients may need prolonged rehabilitation, traditionally provided in inpatient settings. The designers of the early supported discharge (ESD) model hypothesized that rehabilitation could be more effectively delivered in patients' homes, shortening length of hospital stays and making rehabilitation more responsive to patients' needs.

**OBJECTIVE** To improve continuity of care by supporting transition from inpatient to home-based stroke rehabilitation and improve cost efficiency by shortening length of hospital stays.

**PATIENTS TARGETED** Patients requiring stroke rehabilitation who are sufficiently mobile.

**KEY FEATURES AND INTERVENTIONS** Patients are assessed for rehabilitation needs before discharge to set initial objectives and ensure continuity of care. Upon hospital discharge, patients are visited at home within 24 hours by the therapy team and receive needed daily physiotherapy, occupational therapy, and speech therapy for up to six weeks. Other social services are provided as usual. Each patient receives an individual care plan, which is reviewed at a weekly team meeting.

There is variation across England in the composition and leadership of rehabilitation teams, as well as their operational policies and the way in which they interact with referring hospitals during discharge planning. All teams involve stroke specialists, including doctors, nurses, physiotherapists, and occupational and speech therapists. Many teams also include or provide access to psychologists and social workers.

Providing rehabilitation in patients' homes ensures that the process is patient-centered and adapted to needs of patients and their informal caregivers, thereby increasing self-efficacy and providing a smooth transition.

**INFORMATION SYSTEMS** No specific system. Data on the quality of care are collected through the Sentinel Stroke National Audit Programme.

**FINANCING AND PAYMENT METHODS** ESD is financed by Clinical Commissioning Groups (i.e., local payer organizations of the National Health Service [NHS]). ESD can also be financed from savings from reduced length of hospital stays. Professionals are salaried employees of NHS providers; there are no financial incentives for providers.

**EVALUATION METHODS** Several randomized controlled trials were published internationally, as well as meta-analysis and a cost-effectiveness model.

**EVALUATION RESULTS** Evaluation of the first implementation of ESD in England showed improved patient satisfaction, reduced length of hospital stays, and resulted in small cost savings. It did not find significant differences in health outcomes. Meta-analysis of 14 randomized controlled trials from Australia, Canada, Denmark, Norway, Sweden, Thailand, the United Kingdom, and the United States found a reduction in long-term dependency and admission to institutional care, as well as reducing the length of hospital stay. Meta-analysis also found improvements in extended activities of daily living scores and patient satisfaction. No significant effects were found in mortality, hospital readmissions, or caregiver-reported health status, mood, or satisfaction. Of the trials that evaluated costs, six found ESD services to show cost savings compared with the control group; one found cost increases.

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ENGLAND

## Reconfiguring Stroke Care in London

**LOCATION** London, England

**YEAR ESTABLISHED** 2010

**BACKGROUND** Stroke is the third-highest cause of death and most common cause of adult disability in high-income countries. Well-organized care by specialized stroke units can reduce mortality and disability. Poor-quality stroke care led the London Primary Care Trusts to form a joint committee, supported by a panel of expert clinicians, other health professionals, and lay members, to develop evidence-based and centralized stroke services.

**OBJECTIVE** To improve health outcomes by providing a uniform and high-quality standard of care for all stroke patients in London.

**PATIENTS TARGETED** All patients hospitalized with stroke, except children.

**KEY FEATURES AND INTERVENTIONS** Eight specialized hyper-acute stroke units (HASUs) and 24 stroke units with colocated transient ischemic attack assessment services provide centralized care. HASUs provide faster response times when a stroke is suspected and continuous access to specialist care throughout the first 72 hours. Specialized nurses and medical teams assess and treat patients from the time of hospital admission. HASUs are accessible to the entire London population by ambulance within 30 minutes.

Stroke units provide ongoing inpatient care as necessary after 72 hours. All units are staffed by doctors, nurses, physiotherapists, and occupational, speech, and language therapists; most also have psychologists. The model requires regular multidisciplinary team meetings and goal setting. A service manager oversees the unit.

Nurses and doctors are trained in a simulation unit. Paramedics also receive training. Units are expected to engage in regular and continued professional development.

**INFORMATION SYSTEMS** Hospitals operate their own information technology systems. All units participate in the Sentinel Stroke National Audit Program, the data source for quality of care for stroke treatment in England.

**FINANCING AND PAYMENT METHODS** Hospitals are paid through National Health Service case-based payments, at a “best practice” rate for stroke, which includes an additional sum for each patient linked to achievement of rigorous standards of care. An estimated 9 million British pounds in capital investments were made to develop stroke units and an additional 23 million British pounds per year were needed to support the model.

**EVALUATION METHODS** Effects on health outcomes in London were evaluated, using the rest of England as a control group. Effects on process measures and costs were evaluated in pre–post intervention comparisons.

### EVALUATION RESULTS

- Average length of hospital stays and risk-adjusted mortality at three days, 30 days, and 90 days after admission were reduced compared to the rest of England.
- Cost savings were achieved through lower rates of admissions to intensive care units, fewer admissions to long-term nursing home care, and reduced need for social supports in the community.
- Since its inception, this centralized model of stroke care has been maintained nearly unchanged, with evidence showing sustained high quality of care.

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FRANCE

## Personalized Health Plan for Elderly at Risk of Autonomy Loss (PAERPA)

**LOCATION** Nine administrative regions across France.

**YEAR ESTABLISHED** In nine pilot regions across France in 2013–14; seven additional regions in 2016 in order to ensure full deployment on the French territory and provide PAERPA coverage to a total of 550,000 persons

**BACKGROUND** French residents age 75 or older are 9 percent of the population but accrue 22 percent of health expenditures. The High Council for the Future of Health Insurance identified several shortcomings in elder care: lack of referral pathways from primary care to specialist physicians, burdens on informal caregivers resulting in “respite” hospital admissions, hospitals’ lack of attention to geriatric patients’ needs, insufficient availability of health care professionals in nursing homes, capacity shortfalls in nursing homes delaying hospital discharge, regional disparities in the availability of social support and personal care services, and lack of coordination between hospitals and social service facilities.

**OBJECTIVE** To improve frail elders’ quality of life, better coordinate their care, and reduce caregiver burdens.

**PATIENTS TARGETED** Those age 75 or older who: live in long-term care facilities; are admitted to hospital via emergency departments; are frail; take certain prescription drugs; or have one or more chronic condition. Eligibility for a personal care plan is assessed by a primary care physician or care coordinator. Across regions, 6 percent to 14 percent of elders were enrolled.

**KEY FEATURES AND INTERVENTIONS** Some features, including eligibility criteria, vary by region. Common features include systematic identification of those at risk; education for elders and their caregivers; professional education on frail elders’ needs; personal care plans; and interventions to reduce the risk of falls. Integrated health and social services are provided through mobile geriatric teams; respite facilities for informal caregivers; telemedicine; a fast-track application for welfare benefits; and temporary stays in long-term care facilities to facilitate transitions from hospital to home. Nurse coordinators coordinate the work.

**INFORMATION SYSTEMS** A secure e-mail system facilitates communication and web-based systems provide information to patients and professionals. Although special legislation permits data sharing among members of care teams, medical records are not yet widely shared.

**FINANCING AND PAYMENT METHODS** National funding for information systems, coordination units, financial incentives, and additional services. Regional Health Authorities fund pilot projects through social security and have autonomy in funding local variations. Providers are paid as usual. In addition, an incentive of €100 per elderly patient with a personal care plan is shared between primary care physicians and other involved professionals. Long-term care institutions receive €53 per day for temporary residents in transition out of hospital.

**EVALUATION METHODS** Pre/post comparisons of process indicators (e.g., number of personal care plans created) are mandatory in local implementations. Qualitative and health economic evaluations are under way at the national level.

**EVALUATION RESULTS** Not yet available.

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## ISRAEL

# Comprehensive Care for Multimorbid Adults Program (CC-MAP)

**LOCATION** Israel

**YEAR ESTABLISHED** 2012

**BACKGROUND** Patients with multiple chronic conditions (multimorbidity) require proactive, coordinated care management to effectively manage their numerous health conditions. Researchers from Clalit Health Services and the University of Haifa, with the support of the Gertner Institute, created the Comprehensive Care for Multimorbid Adults Program (CC-MAP) to address this issue.

**OBJECTIVE** CC-MAP aims to improve the quality of care and reduce preventable hospital admissions for adult Clalit members with multiple morbidities who are at risk for deteriorating health status and incurring high costs.

**PATIENTS TARGETED** Adults with multiple morbidities, defined as three or more chronic diseases, and who are at risk for deteriorating health status, as defined by a validated risk prediction score in primary care clinics that serve the largest percent of multimorbid patients.

**KEY FEATURES AND INTERVENTIONS** The intervention is overseen by CC-MAP nurses, who work with primary care physicians to provide comprehensive care management for 100 to 150 of the highest-risk patients in each targeted clinic. Nurses and primary care physicians receive tailored training and have access to a set of supportive practice tools developed for the intervention.

Main components of the intervention include a comprehensive assessment of patient and family needs; formulation of a coordinated care plan based on integrated care guideline summaries; an action plan for patients; caregiver support including self-management education; proactive monitoring of patients' personalized goal attainment; and coordination of care from all providers including follow-up on institutional transitions.

Patients are encouraged to involve their informal caregivers. Formal social care services, which are separately financed and delivered by social welfare services, are not fully integrated. CC-MAP nurses help patients access social services.

**INFORMATION SYSTEMS** Clalit operates an integrated information system that centralizes all administrative, electronic health, and demographic data. This platform allows for algorithmic identification of high-risk patients, sharing of information among providers (across primary, specialty, and inpatient services), streamlining care processes, and monitoring outcomes and processes, such as medication adherence and use of preventive services.

**FINANCING AND PAYMENT METHODS** CC-MAP is currently cofinanced by Clalit and the Gertner Institute. The only additional resource are the CC-MAP nurses, who are salaried. Primary care physicians continue to receive their usual salaried payment. There are no financial incentives for professionals, and participation is voluntary by informed consent.

**EVALUATION METHODS** Clustered controlled trial.

**EVALUATION RESULTS** Preliminary results comparing 12-month follow-up of 600 patients in the intervention versus 600 control patients indicated a 40 percent reduction in hospital days (average of -2.3 days per patient) relative to baseline. Additionally, quality of chronic care, quality of life, and the performance of daily activities (such as shopping and medication management) were significantly higher in patients enrolled in the intervention compared to controls.

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## ISRAEL

# Clalit Readmission Prevention

**LOCATION** All general hospitals and Clalit Health Services primary care clinics across Israel

**YEAR ESTABLISHED** 2011

**BACKGROUND** Reducing readmissions is a focus of health care systems worldwide to improve quality of care and efficiency. Evidence points to the importance of in-hospital interventions that address patient needs early to prevent unplanned hospital readmissions.

**OBJECTIVE** Develop and implement an ongoing strategy to prevent 30-day hospital readmissions among high-risk elderly patients insured by Clalit Health Services.

**PATIENTS TARGETED** All Clalit members, ages 65 and older, admitted to hospitals. A prediction algorithm (the Preadmission Readmission Detection Model or PREADM) uses electronic medical record and administrative data to derive a risk score and identify high-risk patients.

**KEY FEATURES AND INTERVENTIONS** The PREADM risk score is used by continuity of care (COC) nurses stationed in every hospital in Israel to target high-risk patients. COC nurses provide in-hospital coordination, discharge planning, and coordination with primary care clinic nurses for post-discharge follow-up and monitoring. Electronic messaging between nursing staff in hospital wards and general practices is used to facilitate joint discharge planning. Primary care clinics are responsible for post-discharge follow-up and monitoring, performed by nurses at the clinics according to structured outreach protocols. The PREADM score is used in all primary care clinics to prioritize outreach efforts to high-risk patients within 72 hours of discharge.

**INFORMATION SYSTEMS** Clalit operates an integrated information system that centralizes all electronic health and demographic patient data. This platform allows for identification of high-risk patients, sharing of information among providers, and periodic collection of patient data for monitoring. Additional systems include a platform for automated electronic messaging between hospitals and primary clinics and a post-discharge assessment tool that notifies primary clinics of admissions and discharges and facilitates discharge and post-discharge activities.

**FINANCING AND PAYMENT METHODS** Financed by Clalit Health Services. Providers are paid as usual; COC nurses are salaried Clalit employees. COC nurses represent the main additional investment; the program employs 14 full-time nurses across 27 hospitals. There are no additional financial incentives for providers or professionals.

**EVALUATION METHODS** No control group. Ongoing quality monitoring (objective and patient-reported) over time provides benchmarks (e.g., readmission rates, post-discharge primary care visits, patient-reported quality of post-discharge care).

**EVALUATION RESULTS** Readmissions rate declined by 4 percent to 5 percent on average; up to 15 percent in non-severely ill patient subgroups. Rate of contacts within seven days after discharge with primary clinic nurses has increased since the implementation of the program to over 85 percent. The PREADM predictive algorithm exhibits good predictive accuracy.

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## THE NETHERLANDS

# U-CARE and U-PRIM

**LOCATION** Primary care centers in Utrecht province of the Netherlands

**YEAR ESTABLISHED** 2009

**BACKGROUND** Providing improved care for the increasing number of older people with complex care needs is a major challenge. A greater focus on proactive primary care could help older people maintain their independence and prevent functional decline.

**OBJECTIVE** Preserve daily functioning and maintain independence in older adults.

**PATIENTS TARGETED** People aged 60 and older, independently living in the community and potentially frail (i.e., those with multiple chronic conditions or taking multiple medications or those who are not receiving regular primary care).

**KEY FEATURES AND INTERVENTIONS** The intervention uses algorithmic screening of routine primary care data (U-PRIM), followed by personalized care (U-CARE). U-CARE is delivered by trained practice nurses in cooperation with general practitioners (GPs), and includes a frailty assessment of patients followed by a comprehensive geriatric assessment for those identified as frail. Based on the assessments, nurses create a tailored care plan and provide evidence-based geriatric care, care coordination, and follow-up visits. Coordination spans physical and mental health care, including transitions to and from hospitals. Also includes social care by working closely with social workers and other professionals, like physiotherapists, occupational therapists, and dietitians. Each nurse is responsible for an average of approximately 70 patients.

Guidelines for geriatric conditions were developed through literature review and expert consultation. They provide decision support for nurses and are integrated into care plans. Nurses completed 70 hours of training, followed by ongoing support.

**INFORMATION SYSTEMS** A software application (U-PRIM) identifies potentially frail older patients using available routine care data in the electronic medical records of general practices and provides a periodic report to primary care physicians.

**FINANCING AND PAYMENT METHODS** Incremental cost of the combined intervention in the initial study was approximately 130 euros per patient (100 euros for GP payment and 30 euros for U-PRIM software). The initial study was funded by the Netherlands Organisation for Health Research and Development, which also subsidizes current implementations. No financial incentives were provided to GPs.

**EVALUATION METHODS** Three-arm cluster randomized controlled trial of U-PRIM and U-CARE vs. U-PRIM vs. usual care with one-year follow-up. Accompanying cost-effectiveness analysis and qualitative surveys of patients and providers.

**EVALUATION RESULTS** Small improvement in physical functioning in both intervention groups compared with the control after one year but no overall benefit of U-CARE in addition to U-PRIM. No effects on mortality, quality of life, and satisfaction with care. Increased number of general practice consultations in the U-PRIM and U-CARE group vs. other groups, but no effect on hospital admissions or emergency department visits.

The combination of U-PRIM and U-CARE was found to have a moderate to high probability of cost-effectiveness in the Netherlands, due to decreased lengths of hospital and nursing home stays. Providers reported improved cooperation but also challenges due to time constraints and a lack of financial compensation.

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SPAIN

## Integrated Care Model for Complex Cases and Strategy for Chronic Care

**LOCATION** Valencia region, Spain

**YEAR ESTABLISHED** 2007

**BACKGROUND** Policies were developed nationally and in the Valencia region to respond to an aging population and the rising prevalence of chronic disease and to reorient health care from acute episodes to chronic disease management.

**OBJECTIVE** To improve care for complex patients with multiple morbidities.

**PATIENTS TARGETED** Patients with complex chronic diseases or in need of palliative care. Electronic medical records (EMRs) are used to stratify the population monthly into clinical risk groups (CRGs) and identify high-risk patients.

**KEY FEATURES AND INTERVENTIONS** Integrates hospital, primary, and community-based health services, including hospital-at-home units and social workers, under a single management in each of the 24 health departments of the region. Social care, which is financed separately, is not formally integrated.

Newly introduced hospital nurse case managers (HNCMs) and community nurse care managers (CNCMs) have joint responsibility for complex cases. HNCMs identify complex cases at hospitals and are responsible for planning hospital discharge to ensure continuity of care. CNCMs are responsible for organizing the collaborative care process in the community and arranging home care. This process starts with a comprehensive assessment of the patient, his or her current informal care, and the environment. This is conducted by a multidisciplinary team that includes CNCMs. It covers medical conditions, medications, accessibility of the home, hygienic conditions, dependency levels, mental conditions, and use of technology. After mapping patient needs, HNCMs draft a care plan and medication review adapted to patient

and family preferences. Other resources may be applied, depending on the clinical and social complexity and acuity of the case. Primary care physicians and their teams lead implementation of the plan. Both nurse care managers remain jointly responsible for monitoring the patient, interacting with professionals, and ensuring appropriateness of care.

HNCMs and CNCMs attend 100 hours of training and a month of on-the-job training. Other professionals receive ongoing training related to care integration and care for complex cases.

**INFORMATION SYSTEMS** An information system was implemented in the Valencia region. Each patient has a unique identifier; care providers use the system to share patient information through EMRs. Data generated by hospitals is currently being integrated into the information system. The system is also used for identifying high-risk patients and monitoring their conditions and drug use.

**FINANCING AND PAYMENT METHODS** Financed by the region of Valencia through its ordinary health care budget. All staff are salaried. There are no financial incentives for providers or staff.

**EVALUATION METHODS** The model was not formally evaluated in terms of effectiveness or cost-effectiveness, but pre- and post-trends in outcomes were published.

**EVALUATION RESULTS:** Reduced emergency department visits and hospital admissions.

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### SWEDEN

## Esther Model

**LOCATION** Jönköping County, Sweden

**YEAR ESTABLISHED** Late 1990s

**BACKGROUND** Elderly patients with complex care needs receive services from multiple specialists, as well as from primary care physicians, resulting in fragmented care. In addition, they may have frequent hospitalizations and receive long-term care services at their home or in nursing facilities.

**OBJECTIVE** Using the negative experiences of an elderly patient, known as “Esther,” the program’s founder Mats Bojestig, began to focus on creating a persona, Esther, and asking: “What is best for Esther?” Doing so allows caregivers to focus on the needs, preferences, hopes, and concerns of patients.

**PATIENTS TARGETED** Elderly patients with complex care needs

**KEY FEATURES AND INTERVENTION** The Esther model uses continuous quality improvement, cross-organizational communication, problem-solving, and staff training to provide the best care for elderly patients with complex care needs. Features of the model include:

- A steering committee made up of the community care chiefs from each municipality, the chiefs of geriatrics and medicine at the hospital, and the heads of some primary care centers.
- Four “Esther cafés,” take place in municipalities each year; these are cross-organizational, multiprofessional meetings for sharing and learning from the experiences of patients who have been admitted to the hospital in the past year and currently receive home care or other services.
- Inter-organizational training workshops on selected topics, including wound healing, palliative care, nutrition, fall prevention, and care planning.
- Esther coaches: clinical and administrative staff members (not managers) from all the participating organizations; coaches include nurse assistants, nurses, physical and occupational therapists, social workers, and administrators; coaches are expected to support

improvement projects in the frontline; they are not paid extra—their work as coaches is seen as part of their jobs.

**INFORMATION SYSTEMS** A “virtual competence center” is used to transmit knowledge to practitioners along the care chain. It was supported by a substantial grant (12 million kronor in 2006, about \$1.5 million) to provide two years of training for members of the model in systems-thinking, communication, information technology development, medication management, telephone advice, and documentation. Individual professionals can sign up for online workshops on topics such as dementia or palliative care.

**FINANCING AND PAYMENT METHODS** Budget was 1.8 million Swedish kronor (\$300,000) in 2011, which covered the salary of the coordinators, education of the coaches, and new improvement projects. The current budget comes from the Jönköping County Council and covers meeting expenses and coach education. Coordinators are paid from their home organizations’ budgets.

**EVALUATION METHODS** Results must be interpreted with caution as the program was not designed as a research project; no evaluation specific to Esther was conducted.

**EVALUATION RESULTS** In the Höglandet Hospital where Esther was implemented:

- Admissions to the medical department (for all patients, not only patients 65 and older) of Höglandet Hospital declined from 1998 to 2013; hospital days in the medical and geriatric ward declined from 2002 to 2013. However, similar changes were reported elsewhere in Sweden.
- Hospital readmissions within 30 days for patients age 65 and older dropped from 2012 to 2014.
- Hospital lengths of stay decreased between 2009 and 2014 for surgery and rehabilitation.
- Surveys conducted in 2008 and 2011 showed that Esthers felt safe and were appreciative of the personal contact.

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## UNITED STATES

# Commonwealth Care Alliance “One Care” Program

**LOCATION** Massachusetts, United States

**YEAR ESTABLISHED** 2003

**BACKGROUND** Adults under age 65 who are eligible for both Medicaid and Medicare are a particularly vulnerable group, with complex and often overlooked needs.

**OBJECTIVE** To provide enhanced primary care and care coordination for dually eligible Medicare and Medicaid beneficiaries through multidisciplinary teams that include physicians, nurses, and mental health and geriatric specialists, and to generate savings from reduced hospitalizations and institutional care.

**PATIENTS TARGETED** Under Massachusetts’ One Care demonstration, Commonwealth Care Alliance (CCA) provides coverage to more than 11,000 dually eligible, nonelderly beneficiaries—the majority of state of residents enrolled in the demonstration. Roughly 80 percent have multiple chronic health conditions, mental health problems, or functional limitations due to physical and developmental disabilities.

**KEY FEATURES AND INTERVENTIONS** Interdisciplinary care teams—nurse practitioners, physician assistants, behavioral health and addiction clinicians, social workers, community health workers, and others—assemble around medically complex patients, helping to identify their unmet medical, behavioral health, and social service needs and deploying resources using flexible benefits. Individualized care plans, developed by clinicians and members, guide resource allocation for long-term care, durable medical equipment, behavioral health services, and other key components. Care delivery innovations, including a community paramedicine program and community psychiatric respite facilities, shift care from acute settings into the home and the community (where appropriate), at lower cost.

**INFORMATION SYSTEMS** Web-based and shared electronic medical record.

**FINANCING AND PAYMENT METHODS** CCA receives a risk-adjusted, per member per month, capitated blended payment from both Medicare and the state Medicaid program. CCA then bears full financial risk for the total cost of care, including long-term services and supports, acute and postacute care, pharmaceuticals, and primary care. Given the complexity and cost of CCA’s beneficiaries, these payments are substantial: In 2015, CCA received \$386 million from the Medicaid and Medicare programs, and \$273 million for the 15 months ending in December 2014. The state’s Medicaid contribution ranges from a few hundred dollars per member per month for relatively healthy patients to \$9,000 or more for patients with extended stays at long-term care facilities. The base rate for Medicare Part A/B capitation payments are in the range of \$770 to \$960 per member per month.

**EVALUATION METHODS** A pre/post study of 4,500 CCA One Care enrollees, without control group.

**EVALUATION RESULTS** Enrollees had 7.5 percent fewer hospital admissions and 6.4 percent fewer emergency department visits than in the prior 12 months and greater use of long-term services and supports. A majority of enrollees said they were satisfied with the program. A preliminary analysis found that use of inpatient facilities and inpatient psychiatric days decreased.

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## UNITED STATES

# The Hospital at Home (HaH) Program

**LOCATION** Originally at Johns Hopkins University; there are now versions of the model at Presbyterian Hospital (N.M.), Mount Sinai Hospital (N.Y.), Centura Health (Colo.), Trinity Health (Mich.), Kaiser Permanente (Calif.), Brigham and Women's Hospital (Mass.), Massachusetts General Hospital, Cedars Sinai Medical Center (Calif.), Marshfield Clinic (Wis.), and several Veterans Affairs Medical Centers across the United States.

**YEAR ESTABLISHED** Mid-1990s

**BACKGROUND** Patients often are more comfortable receiving care in a familiar home environment. For the frail and elderly, hospital stays can pose a variety of health threats, including delirium, infections, and falls. Hospitals also have high fixed costs.

**OBJECTIVE** Provide hospital-level, potentially acute care in a patient's home

**PATIENTS TARGETED** Hospital at Home (HaH) treats patients who would otherwise be admitted as inpatients and who meet validated clinical-appropriateness criteria; patients must have housing where care can be provided safely and within 30-minute travel time.

### KEY FEATURES AND INTERVENTIONS

- Robust input from physicians, nurses, and home health aides, who provide daily and intermittent visits and 24-hour coverage; providers also assess risk at home, develop patient-centered care plans, and engage patients and family in managing care.
- Patient retains an “inpatient” status, with the hospital or health system responsible for the acute care episode; care components such as intravenous treatment, durable medical equipment, oxygen therapy, skilled therapies, diagnostic tests, imaging studies, and pharmacy support are provided.
- Coordinated continuum of care is similar to inpatient care; illness-specific hospital-at-home care maps, with clinical outcome evaluations and discharge criteria as used in hospitals.

- More recent versions also provide robust follow-up and transitional care through 30 days post-discharge.

**INFORMATION SYSTEMS** None specific to the model, but hospital systems with electronic medical records (like Veterans Affairs and Presbyterian) experience more seamless transitions.

**FINANCING AND PAYMENT METHODS** Currently no payment codes for HaH care in fee-for-service Medicare. Thus, implementation of the model has been limited to Medicare managed care and Veterans Affairs health systems. An application has been submitted to the Centers for Medicare and Medicaid Services Physician-Focused Payment Model Technical Advisory Committee to obtain a payment mechanism for the model in Medicare.

**EVALUATION METHODS** Various, mostly comparing patients in the program with comparable patients who stay in the hospital for care.

### EVALUATION RESULTS

- Compared to similar hospitalized patients, HaH patients experience better clinical outcomes including lower rates of mortality, delirium sedative medication use, and restraints
- Better satisfaction for patient and family, less caregiver stress, and better functional outcomes
- Cost savings of 19 percent to 30 percent compared to traditional inpatient care
- Lower average length of stay
- Fewer lab and diagnostic tests compared with similar patients in acute hospital care

A recent evaluation found that patients in the Presbyterian HaH program had reduced costs (20% compared to traditional care) and equal or better outcomes than comparable hospital inpatients; HaH patients had slightly lower hospital readmission and mortality rates and almost 10 percent higher satisfaction scores than comparable patients.

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UNITED STATES

## Massachusetts General Care Management Program

**LOCATION** Massachusetts, United States

**YEAR ESTABLISHED** 2006

**BACKGROUND** To provide an enhanced level of care to high-risk patients using comprehensive, outpatient, practice-based case management.

**OBJECTIVE** Improve quality of care and outcomes, reduce cost for Medicare beneficiaries, improve the quality of work life of primary care physicians, and attract more physicians to the field of primary care.

**PATIENTS TARGETED** Medicare beneficiaries who: 1) receive their care from a Massachusetts General primary care provider, 2) reside in one of five counties in Eastern Massachusetts, 3) do not meet exclusion criteria, and 4) meet inclusion criteria based on annual health care costs and a risk assessment algorithm.

### KEY FEATURES AND INTERVENTIONS

- Primary-care based model with reliance on information technology and real-time data.
- Customized services to fit patients' needs, including end-of-life management, psychological and social evaluations and interventions, management of home-to-hospital transitions, inpatient/outpatient mental health program, and pharmacy consultations.
- Care managers conduct assessments using a tool developed by Massachusetts General Hospital that includes several externally validated instruments; questions cover challenges encountered with activities of daily living, among other topics.
- Using assessment, case managers develop a care plan for each patient in conjunction with the primary care provider and the practice's clinical team.
- Case managers conduct home visits on an as-needed basis.

- Comprehensive orientation program for nurse care managers, who also receive training to conduct patient assessments, create comprehensive care plans, arrange for referrals to various services like transportation, and use information systems.

**INFORMATION SYSTEMS** Real-time messages sent to nurse care managers on patient hospitalizations; electronic medical records and advanced clinical and administrative information systems for Massachusetts General Hospital providers; clinical dashboards, using data from electronic medical records, claims data, and enrollment tracking database, allow Mass General Hospital to examine trends in health care utilization and outcomes.

**FINANCING AND PAYMENT METHODS** Monthly Medicare fee of \$120 per patient, together with a requirement to achieve savings of at least 5 percent. Savings of less than 5 percent accrue to Medicare, savings in the 5 percent to 10 percent range go to Mass General. Mass General Hospital provided physicians with \$150 in financial incentive per patient per year to help cover the cost of these activities.

**EVALUATION METHODS** Independent evaluations by Research Triangle Institute and the Congressional Budget Office using difference in differences methodology compared to control population.

**EVALUATION RESULTS** Among the 87 percent of eligible beneficiaries enrolled, there was high patient and physician satisfaction; hospitalization rate among enrolled patients was 20 percent lower than a comparison group. In addition, enrolled patients had lower emergency department visit rates, lower annual mortality, and cost reductions compared with the comparison group.

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