Innovative Care Delivery Models:
Identifying New Models that Effectively Leverage Nurses

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Executive Summary

Commissioned by the Robert Wood Johnson Foundation, this report provides an overview of efforts by health care organizations of all types to create new innovative care delivery models. Faced with the twin challenges of growing demand for expensive acute care and insufficient supply of key health care professionals, leading hospital systems, integrated systems, clinics, and health plans are designing new models to deliver efficient, effective health care.

Through a broad-based research inquiry, focused interviews, and health care leader roundtables, Health Workforce Solutions LLC has selected 24 care delivery models to showcase the innovation underway at health care organizations nationwide. The 24 care delivery models range from hospital-based models that elevate the role of nursing to models targeting transitions between health care settings to comprehensive care models focused on preventive health care and wellness. The models share common features such as creating new roles for nurses, leveraging new technologies, and engaging patients and their caregivers in care planning and delivery.

Complete profiles of each model, including a detailed description, impetus for its development, results, considerations for implementation and replication, and selected tools, will be published online at www.innovativecaremodels.com. By sharing lessons and attributes of these models, the authors hope to encourage replication and spur continued innovation of care delivery models.

Introduction

The health care delivery system in the United States is nearing a crisis point, as the demand for expensive acute services grows in the face of looming shortages of key health care professionals. Health care spending continues to grow at a fast rate in the US, nearly doubling in the last decade and reaching over two trillion dollars for the first time in 2006. Annual health care spending per person averages $7,000.[i] Given the current arrangements for health care delivery, spending will likely continue its upward trajectory as the population ages at a fast rate, with more of the Baby Boomer generation turns 60.

Just as importantly, the aging of the population is expected to have a dramatic impact on the nursing workforce. In 2006, the average age of registered nurses employed in hospitals was 48[ii]. Even more concerning, 45 percent of the RNs employed in hospitals were at least 50 years old[iii], the age at which U.S. Bureau of Labor Statistics' data reveal that RNs start leaving the workforce permanently in large numbers[iv]. The aging of the nurse workforce coupled with few new nurse entrants to the labor workforce during the 1980s and 1990s has resulted in a shortage of RNs in many markets throughout the country. Nurse shortages are expected to spread throughout the country across the next

decade. And nurses are not the only profession in shortage; many allied health roles such as pharmacists and physical therapists are in short supply throughout the country.

At the same time, new incentives are being created to reduce expensive, preventable hospital-based care. New national initiatives are aimed at creating public reporting of hospital (risk-adjusted) 30-day readmission rates. In addition, an increasing number of hospitals are facing shortages of acute care beds.

Finally, consumers are more engaged in health care decisions than ever before and are beginning to demand better service and outcomes.

Given these undeniable trends, the need for new models of care delivery cannot be overstated. At a minimum, efforts to develop models requiring fewer health care professionals are needed. But the need for innovation extends beyond creating models to deliver care with fewer workers to creating models that can leverage new roles and technology to deliver care to more individuals at lower cost while preserving (and hopefully improving) patient quality, safety, and satisfaction.

Identifying Innovative Care Delivery Models

At the beginning of 2007, the Robert Wood Johnson Foundation funded an original research project to identify and profile new models of care that could be widely replicated throughout the United States. Based on conversations with health care leaders, Health Workforce Solutions LLC (HWS) developed a set of criteria, listed below, to designate innovative care delivery models.

- Nursing care delivery model, or interdisciplinary care delivery models with a nursing component and an acute care interface, including transitional care to home setting
- Innovative—models will be considered innovative if they improve caregiver efficiency, quality, and/or cost through one or more of the following changes:
    - New roles for nurses and other professionals
    - New roles for allied health professionals, students, new graduates
    - Use of new technology (or use of technology in a new and novel way)
    - Redesign of physical layout, inventory, or other support systems
- Model demonstrates measurable improvement in quality, safety, cost, and/or (patient or caregiver) satisfaction
- Model decreases long-term demand for acute care nursing through more effective leveraging of nurses
- Model can be replicated in other facilities or communities
- Primarily serves adult patients (>18)

Through a broad-based email inquiry, a literature review, and Internet research, HWS generated a set of 171 leads to be considered as innovative care delivery models. Following an initial review of each of the leads including an assessment of whether the

model met each of the criteria presented above, HWS selected 60 care models for in-depth research interviews.

Looking across the 60 models, the breadth of the effort to design new care delivery models stands out. Innovation in health care delivery can be found at organizations throughout the health care system, from urban academic medical centers to for-profit health plans to rural health associations.

The 60 new care delivery models come from all types of health care organizations. A majority of the new care delivery models have been developed by hospitals, with 40 percent sponsored by acute care hospitals and hospital systems and an additional 23 percent by academic medical centers. Integrated health systems (organizations combining at least two of the following: hospital, physicians, and payers) designed 20 percent of the models. The remaining 17 percent come from a variety of organizations including community-based clinics, a public health department, and a retail-clinic chain.

Three-fourths of the models are located in urban or suburban markets, with 17 percent in rural markets and the remaining seven percent in both types of markets. Not-for-profit organizations sponsor nearly 90 percent of the models.

Not surprisingly, a majority of the new care delivery models (59 percent) are set in acute care hospitals. However, a large percentage of models, 17 percent, provide care in patient homes. The remainder of the models are set in clinics: 13 percent in community-based clinics, eight percent in hospital-based outpatient clinics, and one in a retail clinic.

Narrowing the Focus: Selecting a Group of Models for In-Depth Profiling

In March 2007, HWS gathered a select group of chief nurse officers and executives, nursing managers, and academics from nursing schools to help establish criteria for ranking identified new care delivery models in order to select the most promising models for publication.

One of the most important criteria identified was the ability to replicate the model widely in health care organizations throughout the country. Additional criteria are listed below.

- Innovation, as exemplified by redesigned provider roles and teams, greater reliance on interdisciplinary teams, introduction of new technology, increased responsiveness to patients, and/or the redesign of the physical care environment.
- Sustainability of the model at the original organization and likely sustainability at replication sites.
- Demonstrated impact in terms of reduced cost or utilization, improved patient safety and quality, improved patient and provider satisfaction, and ultimately the ability to reduce the long-term demand for acute care nurses.

Applying these ranking criteria to the 60 models helped winnow the group to a select set of 24 innovative care delivery models. A brief description of each model is provided at

the end of this paper. Complete profiles of each model, including a detailed description, impetus for its development, results, considerations for implementation and replication, and selected tools, will be published online at www.innovativecaremodels.com

For each of these 24 models, HWS conducted in-depth phone or on-site interviews with relevant individuals (e.g. the developer of the model, organization executives and managers, and health care providers working with the model), reviewed published studies and articles about the model, and assessed available results.

Learning from the Innovators: Common Themes from the Models

While each of the models has unique features, the organizations sponsoring the models have relied on similar techniques and approaches for how they have redesigned their care delivery models. HWS has identified eight elements common to many of these 24 innovative models that help describe how they have changed care delivery, as well as inform future efforts by other organizations.

Elevated Roles for Nurses: Nurses as Care Integrators.
In 23 of the 24 models, the sponsoring organization created at least one new role for nurses. In most of these cases, the organization elevated the RN from a role of traditional care delivery to one of integrating care for the patient. Serving in the role of "care integrator," an RN works with increased autonomy to manage and coordinate the care of her or his patients across disciplines and settings. In addition, RNs in these new roles mentor novice nurses and allied health workers.

These new roles give RNs increased authority and accountability for achieving successful patient quality, safety, and satisfaction outcomes. Examples of these roles include RNs serving as team leaders; clinical nurse leaders serving as unit-based care managers; nurse practitioners serving as primary care providers in clinics; and nurse coaches helping patients make successful transitions across settings. At Baptist Hospital in Miami, Florida, for example, the 12 Bed Hospital model created the new RN role of Patient Care Facilitator; essentially a "Clinical CEO" for 12 beds, the PCF manages patient care needs, serves as a primary contact for physicians and other care providers, and mentors other nurses and allied health workers.

In many models, the new RN role also necessitated the creation of new support roles on the care team with expanded scopes of practice. Nine of the models created new roles for allied health workers.

Migration to Interdisciplinary Care: Team Approach.
Over half of the innovative care delivery models deploy an interdisciplinary team for care delivery. On the inpatient side, nurses lead teams of interdisciplinary providers including physical therapists, social workers, and/or pharmacists.

Interestingly, some of the outpatient-oriented models use a core team of a nurse and a clinical social worker to provide primary care to patients. These organizations find it helpful to include a social worker as social and behavioral issues often underlie a patient's clinical condition or help explain noncompliance with recommended clinical advice.

Some of the comprehensive care models staff interdisciplinary teams built around a complete patient's needs. For example, the LIFE interdisciplinary teams consist of Nurse Practitioners, Social Workers, RN/LPNs, Physical and Occupational Therapists, Registered Dieticians, Recreational Therapists, Creative Arts Therapists, Chaplains, Nurse's Aids, Van Drivers, and Physicians.

Bridging the Continuum of Care.
New care delivery models are extending their focus beyond the sponsoring organization's primary setting of care; nearly half of the 24 models provide care that bridges the continuum of health care settings. For some of these models, hospitals serve as the primary setting of care, but the model follows the patient and her or his care into the home, outpatient clinics, and long-term care facilities. In other cases, an outpatient clinic serves as the primary setting of care, but the model follows the patient into the hospital, home, and long-term care facilities.

Notably, some of the models that target either underserved and underinsured patients or older, complex patients extend their continuum of services by providing a wide range of socialization services and activities in addition to their clinical services. The non-clinical services and activities help reach individuals who have not been reached effectively by health care professionals. In addition, the activities provide an opportunity for people to come together and discuss health promotion and healthy living.

Pushing the Boundaries: Home as Setting of Care.
Six of the 24 innovative care delivery models extend the typical definition of health care setting and rely on a patient's home as the primary location for care delivery. Some of these models target the difficulty of the transition from an acute care hospital or a skilled nursing facility to home and build their model around helping patients make a successful transition to home.

Other models go one step further and use the home as an alternative setting of care for individuals who otherwise would be admitted to a hospital or a long-term care facility. Recognizing that patients can suffer many complications from hospital and SNF stays and that some patients (especially older patients) may refuse such treatment, these models have developed alternative ways to allow individuals to remain in their homes and still receive acute level or skilled nursing-level care.

For example, the Hospital at Home provides hospital-level care at home as a substitute for traditional acute hospital admission. Eligible older patients seen in the emergency department are given the option of going home with a multidisciplinary team that provides state-of-the-art acute care services or being admitted to the hospital.

Targeting High Users of Health Care: Elderly Plus.
Six of the innovative care delivery models target older adults who are heavy users of health care: older individuals with specific diseases, who live in or are eligible for nursing homes, or who have recently been discharged from the hospital. Recognizing the significant health care resources consumed by this population and the inefficiency inherent in caring for these patients in a fragmented health care system, these models seek to build health care services (e.g. provider networks, technology, care plans) around the needs of the complex older adult.

For example, Evercare combines benefit design with the creation of a provider network armed with decision support and clinical management programs; under the direction of nurse practitioners, Evercare providers give intensive primary and preventive services to complex, older adults.

Sharpened Focus on the Patient.
A common element of eleven of the 24 models is the active engagement of the patient and her or his family in care planning and delivery and a greater responsiveness to patient wants and needs.

Many of the models directly engage patients by having them establish specific goals, whether the goals are what the patient wants to accomplish that day in the hospital or what a patient wants to achieve during a transition from a hospital to home. Taking this concept a step further, some models give the patient an active role in managing her or his care plan.

Some organizations actively involved patients in the design of their new models, asking patients what they wanted from a hospital, a primary care clinic, or a health system. Rather than orienting the model's care services around providers and how providers prefer to work, these models orient services around what works best for the patients.

For example, in order to better address patient needs, three of the models moved from a traditional appointment-based system to one allowing open access, guaranteeing that clients who come to their clinics and centers will be seen.

Leveraging Technology in Care Delivery.
Over half of the organizations incorporated new technology in their new care delivery models. For some of the models, new technology served as a catalyst for developing a new model. In particular, two hospitals used the implementation of an electronic medical record as an opportunity to assess and update their care delivery model.

A handful of the models deploy technology to manage remote populations and complex outpatient care plans. Technology used in this way includes video-based telemedicine systems to enable nurse-patient encounters and specialty consults, remote medication dispensing machines, and condition-specific software systems with built-in algorithms to help nurses identify when to visit a patient or intervene in a patient's care.

In these examples, nurses and pharmacists manage a patient's care remotely using the new technology as tools to monitor a patient's health, compliance with her or his care plan, and need for additional health care. For example, the Values Driven System places telepharmacy-dispensing machines for prescription medications in remote Alaskan villages. Pharmacists in Anchorage control the dispensing machines remotely, and the pharmacists can consult with patients directly using Internet-based conferencing technology.

Driven by Results: Improving Satisfaction, Quality, and Cost
All of the models were developed in response to specific problems or concerns about patient quality, patient and provider satisfaction, or unsustainable costs and utilization. And leaders of each of the 24 models recognize the importance of measuring the impact of their care redesign and demonstrating the value of the new model. The models measure a broad array of clinical, quality, safety, financial, and satisfaction indicators.

The most successful models continually track results and make necessary mid-course corrections in order to ensure that the model produces measurable improvements in specific indicators that are important to the organization, whether those metrics are patient satisfaction, nurse retention, or hospital readmissions.

Many of the models focus first and foremost on increasing patient satisfaction and improving patient outcomes in the belief that those improvements will lead to lower costs and improved financial performance. For example, Planetree's relentless focus on patient satisfaction and patient outcomes has resulted in increased market share. Planetree Patient-Centered Care helped Griffin Hospital consistently achieve a 97 percent patient satisfaction score; at the same time, Griffin's hospital admissions have increased 23 percent and outpatient services 74 percent over a 10-year period.

A Significant Challenge: Moving Toward National Replication

An overarching goal of this research inquiry was to identify and promote new care delivery models that could be widely replicated and whose widespread replication would significantly impact the future need for acute care nurses. The good news is that a majority of the 24 models have already been replicated, either within the organization to other units or locations or externally to other organizations altogether. Only 38 percent of the models have not been replicated yet.

The more challenging news is that in replicating these models, organizations needed to overcome significant barriers, including conflicting incentives with current reimbursement systems, insufficient access to executive-level decision-making, and fragmented departments and technology. Additional organizations that try to implement these models will face similar challenges, and they will need to adapt the model to their own patient needs and organizational culture.

In October 2007, HWS convened a select group of leading nurse executives and operational executives from a variety of health care organizations including health plans, large hospital systems, and academic medical centers to brainstorm strategies to encourage replication of these new innovative care delivery models.

A key lesson identified in this discussion is the importance of grounding new care delivery models in guiding principles or values developed internally by an organization's employees and customers. Many of the 24 models profiled have used guiding principles or values both as a framework for developing their new models but also as an important touchstone during model implementation and when hiring new individuals to staff the model.

Finally, the group discussion focused on the need to continue innovating. These 24 models are intended to serve as a starting point in the development and propagation of innovative care delivery models. It is our hope that many organizations will peruse these models and find ideas and elements to adopt and adapt for their own patients. But the even greater hope is that these models will encourage and inspire continued innovation in care delivery.

Innovative Care Delivery Models: Brief Overviews of 24 Models

The 24 models are organized into three broad categories of care delivery: acute care, bridging the continuum, and comprehensive care models. Complete profiles of each model, including a detailed description, impetus for its development, results, considerations for implementation and replication, and selected tools, will be published online at www.innovativecaremodels.com.

Acute Care Models

Medical/Surgical Unit Team Nursing at Banner Estrella Medical Center is a nursing-team delivery model that incorporates LPNs into care delivery in order to better leverage RN time and decrease the need for RNs. The model relies on each member of the care team working to the fullest of her or his training and licensure.

The **Model RN Line** at Virginia Mason Medical Center is a team-nursing model for providing care in the inpatient setting. The model is a result of the Virginia Mason Production System (VPMS) and its dedication to recreating health care systems to eliminate waste, errors and defects.

The **Nurse Caring Delivery Model** at MetroWest Medical Center is a team-oriented primary nursing model for providing care in inpatient and outpatient settings. The model aims to provide humanistic, coordinated care using Jean Watson's Theory on Human Caring as its foundation.

Patient Centered Care at Southwestern Vermont Medical Center is a decentralized interdisciplinary care model that elevates the direct care RN to patient care manager. The model replaces traditional manager, charge nurse and supervisor positions with additional nurse experts and allied health roles that support direct patient care.

Planetree Patient-Centered Care at Griffin Hospital is a patient-centered acute care model that empowers patients and families through education and healing partnerships with caregivers. The holistic care model encourages healing in all dimensions (mental, emotional, spiritual, social and physical) and integrates complimentary therapies with conventional medical treatment.

The **Primary Care Coordinator** at UPMC Shadyside is a restructured nurse role that enables patient-focused interdisciplinary care. The PCC provides unit-based care planning and coordination for a range of 15 to 20 patients.

The **Primary Care Team** at Seton Family of Hospitals is a differentiated nursing practice team composed of an RN care manager, an RN or LVN provider, and a clinical assistant. The primary care team shares the responsibility of providing care for an assigned group of patients.

A **Self-Organized Agile Team** at Prairie Lakes Healthcare System is an interdisciplinary team model focused on increasing the amount of time nurses spend in direct patient care. The model supplements the primary nurse caregiver with additional nurse and allied health support and equips caregivers with comprehensive online care planning and documentation.

The **Unit-Based Care Manager** at the VA Tennessee Valley Healthcare System is a new role created for Leaders^{SM} (CNLs ^{SM}), where a hospital unit's care team and delivery is redesigned to leverage the CNL's knowledge, experience, and functionality.

The **12 Bed Hospital** at Baptist Hospital of Miami is a nurse-managed acute care model in which an RN Patient Care Facilitator (PCF) serves as "Clinical CEO" for a 12 to 16-bed unit. The PCF manages patient care needs, serves as a primary contact for physicians and other care providers, and mentors other nurses and allied health workers.

Bridge the Continuum

The **Care Transitions Intervention^{SM}** is a nurse-coaching model that targets transitions between care settings and seeks to impart skills and confidence to enable individuals to assume a more active self-care role.

Chronic Care Coordination at Kaiser Permanente Colorado is a nurse-based model with consultation from Licensed Clinical Social Workers, for providing clinical and educational support to complex patients. Through mostly phone-based interactions,

nurses help complex patients and patients transitioning between care settings understand their care plans and instructions and access the clinical services they need.

Collaborative Patient Care Management at High Point Regional Health System is a multidisciplinary case management model in which RN Patient Care Coordinators and physicians co-chair practice groups targeting high-risk, high-cost patient populations.

The **Heart Failure Resource Center** at Piedmont Hospital is a nurse-practitioner-led protocol-driven model of care for medically complex, chronically ill patients with heart failure.

Home Healthcare Telemedicine at Presbyterian Health Care Services is a remote technology-enabled model in which nurses manage the care of chronic patients in their homes using video units and diagnostic devices.

The **Hospital at Home** provides hospital-level care at home as a substitute for traditional acute hospital admission. This new care model is an acute home-based program in which eligible older patients are taken home by a multidisciplinary team that provides state-of-the-art acute care services.

The Little Clinic is a healthcare services company that manages walk-in clinics placed inside retail locations. The clinics focus on treating minor illnesses by nurse practitioners and physician assistants. The Little Clinic provides preventative and wellness offerings such as health screenings, physicals, and vaccinations and provides prescriptions as clinically indicated.

The **Nursing Model for Anticoagulation Management Service** (AMS) at Massachusetts General Hospital is a patient-centered program that provides long-term outpatient anticoagulation care for approximately 4000 patients. AMS nurses initiate and begin monitoring anticoagulation at hospital discharge, helping get patients to therapeutic range, and transitioning them into the long-term maintenance program.

The **Transitional Care Model** provides evidence-based comprehensive in-hospital planning and home follow-up of chronically ill high-risk older adults. At hospital admission, eligible patients are assigned a Transitional Care Nurse, who conducts a comprehensive assessment of patient and family caregiver needs, coordinates the patient's discharge plan with the family and hospital provider team, implements the plan in the patient's home, assists the patient with management of their care needs, and facilitates communication and the transition to community providers and services.

11th Street Family Health Services is a nurse-managed health center that provides primary care and health promotion services to over 4,000 urban residents of a medically underserved area. Using a transdisciplinary model, the center provides a comprehensive range of health services including physical exams, diagnosis and treatment of illness, family planning, health maintenance/disease prevention services, dental, nutrition, physical fitness and behavioral health.

Comprehensive Care Models

The **Comprehensive Rural Care Collaborative** at Minnie Hamilton Health System is an integrated health service model that provides comprehensive health care and wellness activities to a rural community.

The **Evercare Care Model** at United HealthCare Group is a primary care team model in which nurse practitioners and care managers work with primary care physicians, facilities, social support services providers and families to provide intensive primary and preventive services to people who have long-term or advanced illness, are older or have disabilities. The model combines benefit design, the creation of a provider network, and clinical management programs.

Modeled after the national PACE program, **Living Independently for Elders (LIFE)** at Penn Nursing is a nurse practitioner-managed interdisciplinary model of all-inclusive health care for older adults who are eligible for nursing home care but choose to remain at home and receive their care in the community.

The **Values Driven System** is a family-centered model providing comprehensive and accessible health care to an entire population of Alaska Natives. Services provided include primary care, acute care (hospital), home care, outpatient services, dentistry, optometry, behavioral/mental health services, and many social programs.

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