The Patient Lock Model©:
A Continuum of Care

Jennifer H. Matthews, PhD, RN, ACNS-BC, Thomas Ray Coe, PhD, RN, NEA-BC, MHA, FACHE, Carola Brufat, MSN, RNC, WHNP-BC/FNP-BC, Stephanie Burnett, MSN, RN, ACNS-BC, CRRN, Patricia Howard, PhD, RN, CEN, CPEN, FAEN, Cheryl Peterson, MSN, RN

Abstract
Nursing as a profession has the responsibility to society to protect and promote the health of individuals and communities. The intent of this conceptual model is to center the patient in his or her environment while allowing qualified, expert health professionals to provide timely, effective, cost-efficient care within their levels of competence and expertise. Significant shortages of registered nurses and other health professionals delay timely provision of quality care and affect the effectiveness of care. Care management issues are due to the complexity of individual patient’s health care needs, limited access to providers, inability to afford treatment, and delay in seeking care. These challenges to the system slow efficiency in the provision of care across all settings. In presenting this conceptual model, there will be a review of nursing and the internal and external forces that affect the profession. This is an initial development phase of the model: The Patient Lock Model.

Keywords
continuum of care, health care provider competence, nursing/health care workforce issues

Introduction
Nursing as a profession has the responsibility to society to protect and promote the health of individuals and communities (American Nurses Association [ANA], 2010a; ANA, 2010b). The intent of this conceptual model is to center the patient in his or her environment while allowing qualified, expert health professionals to provide timely, effective, cost-efficient care. Significant shortages of registered nurses and other health professionals delay timely provision of quality care and affect the effectiveness of care. Care management issues are multifaceted due to the complexity of individual patient’s health care needs, limited access to providers, inability to afford treatment, and delay in seeking care. These challenges to the system slow efficiency in the provision of care. In presenting this conceptual model, there will be a review of nursing and the forces internally and externally that affect the profession.

Nursing
Since Florence Nightingale began her nursing practice, nurses and advocates have created and advanced concepts of nursing. Henderson fashioned her familiar definition in 1955 and modified it to acknowledge the changing needs of the patient and health care system.

Nursing is primarily helping people (sick or well) in the performance of those activities contributing to health, or its recovery (or to a peaceful death) that they could perform unaided if they had the necessary strength, will or knowledge. It is likewise the unique contributions of nursing to help people to be independent of such assistance as soon as possible. (Henderson, 1978, p. 26)

In 1978, Henderson reflected on this definition and the elements that cloud a clear concept of nursing; many of these elements affect the image of nursing, and therefore, the placement of nursing care in the patient’s continuum of care. Several of these elements include educational preparation of
nurses, settings where nurses practice and patients receive care, legal barriers to practice, and the professional scope of nursing practice. In the case of the latter element, the American Nurses Association (2010b) has recently noted,

The profession of nursing has one scope of practice that encompasses the full range of nursing practice. The depth and breadth in which individual registered nurses engage in the total scope of nursing practice is dependent on their education, experience, role, and the population served. (p. 4)

Nurses possess a broad spectrum of abilities and varying levels of competence based on their initial educational preparation. This variation in nursing knowledge and expertise influences the impressions about nurses held by the public as well as by members of the health professions. The perceived value of nursing may vary based on setting and other health care resources available to the patient. Urban areas typically have more physicians available and the nurses’ contribution to care may not be as apparent. Conversely, in rural or socioeconomically depressed areas nurses may be the only care providers and thus patients may have a greater recognition of nurses’ contribution to their health and well being.

Henderson (1978) ended with comments about what is unique to nursing. She suggests that nursing’s uniqueness surfaces when the day is done and the other providers go home. Nurses provide a 24-hr service to patients, performing those activities contributing to health, or the recovery of health that patients could perform unaided if they had the necessary strength, will, or knowledge. It is the nurse’s exposure to and assistance with intimate-private functions of an individual while maintaining that individual’s dignity with respect and caring. “This intimate and essential service is, in my opinion, the universal element in the concept of nursing” (p. 30).

In a closer examination of the legal realm of providers of health care, Safriet (2002, p 302) provides insight into the “Gordian knot” of regulation and how scope of practice is a player in the current dysfunctional system. She advocates shifting the focus of regulation from professional self-interests embedded into law to a focus on public- (that is, the patient-) centered interest. Safriet believes that innovations in health education, technology, and clinical practice will force changes in the scope of practice to allow the provider who is most able to provide high quality care, with greater efficiency, cost effectiveness, and convenience (p. 333) to become the patient’s provider of choice.

Available Nursing and Healthcare Workforces

Analysis of data on the health care workforce indicates that a shortage of registered nurses (RNs) will continue (Health Resources and Services Administration [HRSA], 2010) even though the numbers of RNs has reached more than 3 million. In the face of the profound economic events that occurred in 2008 and which continue into 2010, understanding and analyses of RN employment and RN availability to the workforce continually shift (Buerhaus, 2009; Buerhaus, Donelan, DesRoches, & Hess, 2009). Some experts contend that the shortages will increase into the next decade, pushing the deficit to as high as 285,000 RNs by 2020 (Buerhaus, Staiger, & Auerbach, 2008). Donelan, Buerhaus, Desroches, Dittus, and Dutwin (2008) further state “. . . assuming that there is no let up in the demand for RNs, by 2025 the nursing shortage is projected to reach 500,000 RNs. The impact of a shortage of this size is difficult to comprehend” (2008, p. 143). The Health Resources and Services Administration (2009) is alarmed that nationwide the healthcare workforce shortage is accelerating, and that a shortage of at least 100,000 doctors and a million nurses is imminent; a more dire prediction than Donelan et al. Staiger, Auerbach, and Buerhaus (2009, p. 1678) estimate that the numbers of physicians exiting the workforce is greater than HRSA estimates and reinforce that the shortages may be more pronounced. The Institute for Medicine (IOM, 2008) states that by 2030 the United States will need an additional 3.5 million formal health care providers—a 35 % increase from current levels—just to maintain the current ratio of health care providers to the total population (p. 5). In addition to the IOM, other organizations such as the Institute of Health Improvement (IHI), The Joint Commission, the Centers for Medicare and Medicaid Services (CMS) have identified expectations for the nursing profession to provide the quality patient care demanded by society and continued vigilance against system errors (Bisognano, 2010; Clarke & Donaldson, 2008).

For nurses in the workforce, providing professional nursing care is challenging given the rising patient complexity and acuity, staffing intensity, and the physical demands on the direct care nurse at the bedside in acute, long-term care, and community-based settings. The economic value of increasing the numbers of RNs is evident from research analyses by Dall, Chen, Seifert, Maddox, and Hogan (2009). Health care organizations cannot sustain staffing by professional nurses only; they need the skills of the RN that include delegation and supervision. Adding 133,000 RN Full Time Equivalents (FTEs) to the acute care hospital workforce may save 5,900 lives a year, decrease hospital length of stay by 3.6 million days, and increase United States work productivity by US$231 million resulting in US$6.1 billion in medical savings or cost avoidance. Fifty-four percent of all health care workers are either licensed nurses or nursing assistive personnel (IOM, 2004, p. 3) and personal- and home-care aides and home health aides will represent the second- and third-fastest growing occupations between 2006 and 2016 (IOM, 2008, p. 5). For the aging population, remaining at home is a goal—that can be achieved with personal care aides to assist in care activities.
Challenges in the Delivery of Nursing Care

Benner (2009) applauds the work of colleagues to address the “current societal discussions, debates, and legislation on developing a more inclusive, less expensive, and higher quality health care in the United States” (p. xiii). To deliver quality professional nursing care, there must be efficient utilization of limited resources in the care setting and this may be accomplished through regulated authority vested in the nurse, that of delegation and supervision (ANA, 2007; National Council of State Boards of Nursing [NCSBN], 1997). Importantly, professional judgment guides the RN to recognize tasks that cannot be delegated to personnel less prepared in managing patient care. To delegate a professional task to unprepared personnel could result in poor outcomes. Utilizing properly prepared nursing assistive personnel (NAP) through appropriate delegation of tasks, supervision in the task delivery, and evaluation of outcomes results in improved overall fiscal management necessary in today’s health care industry, best positioning the professional nurse to coordinate services effectively, and to communicate with the multidisciplinary team (ANA, 2007; NCSBN, 2005).

Scope of Practice Overlap

Previously, nurses focused on delegating and shifting tasks to personnel who are under the supervision of the RN; however, there are clinical health care professionals who are able, licensed, and competent to provide professional care to meet patients’ needs that overlap nursing’s scope of practice. Examples include clinical pharmacists, clinical psychologists, nutritionists, physical therapists, occupational therapists, and others. Likewise, nurse practitioners’ and physician assistants’ competencies and scopes of practice overlap with physicians. Through improved health professions curricula and licensure, the competencies of graduates have improved, expectations have evolved, and regulations have changed, resulting in boundaries in some areas of care provision and practice that are “gray”—that overlap another professional’s “domain.” These professionals may practice in a variety of settings from acute care to long-term to ambulatory or to community-based points of care.

The International Council of Nurses (ICN) recognizes the health professions shortages globally, especially among nurses, and advocates for advancing models that minimize duplication of work efforts, working to full scope of practice for licensed nurses and other personnel, maximizing skills and decision-making capacity, and practicing in interdisciplinary and intersectoral multiservice approaches (ICN, 2007). Nurses desire the best patient outcomes and have worked collaboratively to achieve positive outcomes across all settings. Nursing recognizes the challenge of addressing a model of care delivery depicting the appropriate provision of care across settings considering the continuum of care.

The patient lock model has been developed to describe how complex care can be provided in any setting, individualized to the patient’s needs and desires, by the health care provider most suited to the needs, the setting, and the resources of the patient.

The Patient Lock Model

Health care delivery and nursing care delivery occur within the continuum of care and can be shown in a patient centered model with the where, who, why, how, and what of care delivery as the other model components. Critical components in care delivery are the care setting or environment, care provider, focus and outcomes, delivery model, and the care resources. These critical components themselves have their own continuum of range or limits; that is, skills range of the care provider, resource availability within the setting, or financial resource limits of the patient or setting. The Patient Lock Model (a continuum delivery model; Figure 1) depicts a digital lock for which the “combination” is unique and centered on the patient’s needs and each patient’s unique characteristics. In this lock model, the digital combination differs for each patient—and the combination would be re-set by the patient for each new episode or care encounter on the health care continuum. Different combinations represent changes in the components of the care delivery such as provider skill, available resources, delivery models, and other factors. Recognizing these factors the nurse or other care professional can prioritize the care requirements that affect patient expectations, satisfaction, and quality outcomes.

The following passages describe the components and elements of the model. The individual horizontal elements of the model themselves are interlinked and affected by the patient characteristics. For example, the patient’s health status will determine the patient’s location at a point in time (at home, homeless, long-term care, acute care) and the patient care setting where the nurse [or health provider] encounters the patient and the type of patient care delivery mode used to meet the patient needs.

Patient—Health Status and Expectations

The patient’s needs are depicted by the vertical housing of the lock, the tumbler, which holds the unique combinations for a point in time for one individual (Figure 1). Some of the characteristics of the patient within the housing-mechanism are personal attributes that affect controllable elements. For example, the individual’s attributes of age (from unborn to aged), gender, and genetic patterns are unique to each person and cannot be altered but are not themselves constant. The patient alone or as a unit with the family, significant others,
and support systems (including faith beliefs) makes decisions that affect the health status. Within the individual, there is the inherent right of self-determination (in the present time or by preplanned decision and proxy; ANA, 2008) and the expectations one has that society provide a level of care and treatment (ANA, 2010a). These personal decisions have profound effects on the individual's health status. Decision examples include nutrition choices, personal habits (use/avoidance of substances of abuse), illness prevention (immunizations), and health maintenance activities (physical exercise, stress reduction). The patient/family can be at any point on a continuum of life in health, wellness, illness, or healing. This point on the life-wellness continuum exists in any setting where the patient may be.

**Patient Care Settings/Environment**

The nurse provides care during an encounter at the point where the patient is. The care episode can be in any setting. Typical routine settings include the home, ambulatory care, the community, an assisted living facility, a long-term care facility, a skilled care facility, or the hospital. In reality, the setting could be through technology such as telephone or web-based (digital health delivery), in the most rudimentary surroundings, or in a high-technology workspace. The care continuum could be a short-term episode (annual influenza vaccination at a drive-through clinic) to a complex long-term episode of care such as an oncology unit, long-term care, or palliative care setting. The setting may also influence the selection of care provider and the level of skill, licensure, or certification.

**Figure 1. Patient Lock Model**

The patient's needs are represented by the use of a digital pad, with one keypad determining the setting or care environment, another keypad the provider and skill level, and so on through outcomes, delivery model, and resource utilization in consultation with health care providers and family. The goals, focused on patient desired outcomes, are established by the patient and nurse, or health care provider.
RN should then assess the educational needs of the patient and their support system, developing an educational plan to meet the patient care needs. It is the responsibility of the nurse to develop and implement a plan providing education and support to the patient and the support system. An ongoing component of the nurse plan of care is to provide an evaluation of the care provided to the patient and plan additional interventions.

**Patient Care Focus and Outcomes**

The patient is the focus and center of care of the nurse and for each provider. Successful patient outcomes reflect honoring the patient's decisions and wishes through excellence in nursing practice. The goal for the patient is optimal functioning in relation to health, wellness, and healing-recovery. Much of the outcome is dependent on the patient's understanding of his health care needs, use of health care resources, developing realistic expectations, and the ability to perform self care. The nurse coordinates for the patient/family what the patient cannot do independently to attain the highest level of functioning and self-sufficiency (Henderson, 1978).

**Patient Care Delivery Model (Mode/Principles/Case Management)**

The nurse bases care on the Scope and Standards of Practice and the Code of Ethics for Nurses (ANA, 2001, 2010b) as well as state nurse practice acts. Another component or lock combination (tumbler) is the mode and delivery of care is custom tailored by the nurse to the setting and to the patient's needs based on health status and expectations as influenced by faith and cultural beliefs. There is professional empowerment through autonomy of practice. Establishment of trust with the patient and family develops with the respect for and acceptance by the nurse of the patient's decisions in health care choices (ANA, 2001, 2008). The delivery principles are doing the right thing for the right patient, at the right time, for the right reasons, by the right provider (ANA, 2009). That provider could be the registered nurse, another licensed professional, the NAP, or the family/support system. The model is applied through evidence-based knowledge, experience, competency, judgment, collaboration, communication, and cooperation appropriate for the patient's setting.

**Patient Care Resources—Available Resources/Resource Utilization**

The care is based on the setting and resources available. On the patient side, the considerations are personal resources that are foundational values and beliefs, financial assets, and social assets such as support systems. Setting resources include community resources at the local, regional, national, and international levels, which impact food availability, water safety and availability, shelter and heat, energy, and sanitation. The human resources vary and may include the preparation of health care workers at the professional level or the community worker level and NAPs. On the health care industry side, the considerations are the availability of care capacity, technology, diagnostic capabilities, medications, treatments, and payer source. The payer source may be private pay, third party payer such as commercial insurance, a managed care arrangement, charitable care (foundation or other organization) or public insurance (Medicare and Medicaid). The role of the payer in the making of health care decisions is a topic of recent debate and documented in the health care literature (Levine, Taylor, Ryan, & Sculpher, 2002).

**Application of the Model**

In this example, the patient's health condition is the focus; it is an acute coronary syndrome. Each of the two patients described provide a unique combination of interface and interaction between the patient and the health care system.

The first patient is a 40-year-old male with classic subjective manifestations of chest pain and an acute coronary syndrome (ACS):

- The characteristics of the patient: male, 40 years old, and his genetic pattern includes a positive family history of cardiac disease.
- Decisions and choices made by the patient affect the current episode: weight gain and indifference to dietary choices, minimal exercise level, and tobacco dependency.
- The patient’s expectation is that prompt appropriate treatment will allow for return to work and full-functioning in all aspects of life. The care will begin with the emergency medical system response continued by personnel in the Emergency Department (ED); the patient wants relief and cure—**NOW**.
- The patient’s initial setting was in the community or at home; the nursing care settings will be the ED, a specialty invasive diagnostics lab, perhaps in the operating room, a specialty nursing postintervention unit, home care, and then focused cardiovascular rehabilitation.
- The patient care providers belong to a well-skilled multidisciplinary teams working collaboratively in a highly technical environment.
- Patient care focus and outcomes are to promptly intervene for this patient, maintain and reperfuse as much myocardial tissue and other vital organ tissues as possible, alleviate anxiety of the patient and family during this episode. Developing rapport and trust so that subsequent interactions with nurses will allow recovery and teaching needed to change lifestyle.
- Patient care delivery mode will be to provide care for the patient as a member of the ED team and the remaining teams as delineated previously. It will
For a cancer patient, the keypad setting of 3, 5, 1, 2, 3; would equal to a patient in an office, seen by a physician, focusing on wellness, in a primary care model, financed with Medicare.

As care progresses the setting becomes 4, 3, 3, 5, 3; representing a patient in an outpatient center being treated by an RN, focused on healing, using a team approach and financed by Medicare.

For a joint replacement patient, the keypad setting of 2, 9, 5, 5, 2 would equal to a patient in Rehabilitation setting, seen by a therapist, focusing on rehabilitation, using a team approach, financed with Commercial Insurance.

For a burn patient, the keypad setting of 1, *, 3, 5, 9; would equal to a patient at home, treated by an EMT, focusing on prevention, in a multidisciplinary team model, with unknown financing.

As care progresses the setting becomes 7, 9, 5, 7, 6, representing a patient in a rehabilitation facility being treated by a physical therapist, focused on rehabilitation, using a case management approach, financed by a specialty organization.

For a diabetic patient, the keypad setting of 1, 2, 1, 7, 1 would equal to a patient at home, seen by an LPN, focusing on wellness, using a case management approach, with self pay.

For a traumatic amputation, the keypad setting of 5, 5, 3, 5, 5, would equal to a patient in a hospital ED, seen by a physician, focusing on healing, using a team approach, financed with Workers Comp.

Comp. As care progresses the new setting becomes 4, 3, 3, 7, 5, representing a patient in an outpatient center being treated by an RN, focused on wound healing, coordinated by a case manager and financed by Workers Comp.

For a child with asthma, the “lock combination” of 1, *, 1, 3, 4; would equal to a child at home, care provided by family, focusing on prevention, using family support, financed with Medicaid.

Figure 2. Examples of other patient scenarios demonstrating possible use of the digital lock combination to address patient access at various stages along the continuum of care

depend on competency, efficiency and autonomy that derive from knowledge and experience to save the patient’s life.

- The available resources are a highly technical ED as well as many of the treatment areas including the cardiac catheterization lab for diagnosis and treatment. Further resources will be available in technical personnel, ICU personnel and technology, postrecovery phase in rehabilitation and so forth.

The second patient is a female with some chest pressure and nausea as the subjective manifestations of chest pain and ACS:

- The characteristics of the patient: female, 85 years old, and her genetic pattern of a family history of cardiac disease.
- Decisions and choices made affect the current episode: weight carried in the waist and former indifference to dietary choices, minimal exercise level formerly and now in the Long-Term Care setting (LTC).
- Her expectation is she will not be treated heroically. She and her family agree that she has had a full life and she should be allowed a natural death (AND) if events require aggressive treatments—she wants comfort and care.
- Her initial setting was in a LTC; her current nursing care setting is the LTC and may end in the LTC with care primarily being provided by LPNs and NAPs with supervision by an RN.

- The physician is notified and she is admitted for 23-hr observation to a medical care unit. The care provider belongs to a well-skilled multidisciplinary team working collaboratively in an appropriately (but modestly) equipped unit.
- Patient care focus and outcomes are to assess and verify the diagnosis of ACS. The care focus is to maintain and reperfuse as much myocardial tissue and other vital organ tissues as possible; alleviate anxiety of the patient and family during this episode. Developing rapport and trust so that subsequent interactions with nurses will allow recovery and decrease stress on the cardiac muscle. This episode is an acute point that is followed by a decline in cardiac function most likely leading to heart failure.
- Patient care delivery model in the hospital will be to meet the patient’s care expectations. It will depend on skill, efficiency, and autonomy from knowledge and experience to provide comfort and care.
- The available resources are high touch on the short-stay unit with standard diagnostics. Postrecovery phase will use the resources of the long-term setting and to provide for comfort care and recovery of function.

These two patients have similar diagnosis but have unique health status and expectations. Because each is unique, the combination of settings, provider expertise required, outcome expectations, delivery model setting, and resources utilized vary as much as 180 degrees.
The Patient Lock Model can be applied to the concept of patient care at a specific point in time with a unique combination of patient expectations, setting of care, needs, care providers, and resources. The digital combination numbers represent caregivers/settings and are not intended to represent a priority ranking that the patient will encounter for the episode of care to attain comfort or wellness.

Summary/Conclusions/Implications
The Patient Lock Model provides a framework for care that allows for the provision of varied tasks across the health care continuum with the patient at the center of the model. Individual patient attributes and decisions combine to indicate care needed and reveal what type of provider is best able to provide that care needed. This model focuses on the patient and encourages access to care, often in the setting of the patient’s choosing. Health care professionals may perform tasks relinquished by the professional nurse but are within the provider’s scope based on the setting and the level of acuity. The central element of the patient lock model is ensuring that the patient’s expectations for care are met (satisfaction and quality) and the outcome is within the prescribed range for the clinical condition. Applying this model may result in cost efficiencies since provider selection and settings often dictate cost factors.

This model is in an initial phase of development and there are aspects that need further investigation and application. This model may be helpful to assess or measure the value or usability of proposals for the health-home centers (medical home centers) that are part of health care reform. Models that can readily depict activities of health care delivery may facilitate the public’s understanding of the importance of individualization of care delivery dependent on patient health status, outcome expectations, care setting, care provider, resource availability and utilization. Policy application and modeling would be helpful to extract the power of this model for individuals and populations.

Authors’ Note
The model presented in this article was developed during the tenure of the first five authors on the American Nurses Association (ANA) Congress of Nursing Practice and Economics (2006-2010) and its Workgroup on Continuum of Care, for which Dr. Matthews served as Chair.

Acknowledgments
The authors received helpful feedback from other Congress members of the ANA Congress on Nursing Practice and Economics. The authors also appreciate the input provided by Mary Jean Schumann, ANA Chief Programs Officer.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the authorship and/or publication of this article.

Funding
The author(s) received no financial support for the research and/or authorship of this article.

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Bios

Jennifer H. Matthews, PhD, RN, A-CNS-BC is an associate professor of nursing at Shenandoah University in Winchester, Virginia

Thomas Ray Coe, PhD, RN, NEA-BC; MBA, MHA, FACHE, is a lieutenant colonel, Army Nurse Corps, currently assigned to the Nursing Research Service, Womack Army Medical Center, Ft Bragg, NC. The opinions or assertions contained herein are the private views of the author and not to be construed as official or as reflecting the views of the U.S. Army Medical Department, Department of the Army, or the Department of Defense.

Carola Bruflat,MSN, RNC, WHNP-BC/FNP-BC is a member of the Association of Obstetrics, Women’s Health and Neonatal Nurses, and is a Women’s Health Nurse Practitioner in private practice in Virginia.

Stephanie Burnett, MSN, RN, ACNS-BC, CRRN is the advanced nursing coordinator for the Department of Rehabilitation Nursing and the Safe Patient Handling Program at the University of Alabama Birmingham Hospital, Birmingham, Alabama

Patricia Howard, PhD, RN, CEN, CPEN, FAEN is the operations manager of emergency and trauma services at University of Kentucky Chandler Medical Center in Lexington, Kentucky.

Cheryl Peterson, MSN, RN is the director of nursing policy and practice, American Nurses Association, Silver Spring, Maryland.