

## How to Educate Cardiac Nurse Specialists for Roles in Advanced Cardiovascular Nursing Practice

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### INTRODUCTION

Cardiovascular disease (CVD) and stroke, once considered disorders limited only to Western nations, have reached global proportions, affecting even countries that are in transition in their economic development (WHO, 1996). Today, CVD is an impending global epidemic requiring appropriate governmental and organizational responses. I commend the leaders of Japanese Nursing for recognizing that this change calls upon the nursing profession for prompt action to prepare for the opportunities and challenges ahead in order to meet the public health care demands of nursing in the 21<sup>st</sup> century in Japan (WHO, 1996).

This paper describes briefly the development of a cardiovascular nursing specialty in response to the CVD epidemic in the United States (US) and Japan and the historic developments in the nursing profession that took place in the US in the light of this epidemic (Table 1). Specifically, it relates the development of a nursing workforce with appropriate specialty qualifications and the necessary academic and experiential preparation to permit it to respond to the health care challenges in the US. This paper is intended to provide examples – the leaders of the Nursing profession in your country can best identify which, if any, of the options described may be societally, culturally, and economically suitable to the Japanese health care system in general and to the Japanese Nursing profession in particular.

### A REVOLUTION IN CARDIOVASCULAR CARE

The medical advances of the 1960s fostered the realization that patients who experienced a myocardial infarction might also have cardiac arrest or ventricular arrhythmias, such as ventricular tachycardia (VT) or ventricular fibrillation (VF), and that, by monitoring these patients, such life-threatening arrhythmias could be reversed, thus averting death. In response to this realization, industry, especially the pharmaceutical industry, manufacturing defibrillators for the treatment of VF. Their response led to such services becoming available. Availability of

devices (defibrillators) for treating CVD in all major hospitals in the major cities across the US and, in time, also in rural areas.

Physicians recognized that vigilant 24-hour observation of cardiac patients was required in order for these advances to provide their full benefit. Nurses soon responded and – due to the nature of their services, which presumes 24-hour patient care – started to provide monitoring of patients with CVD, receiving training that enabled them to implement “standing orders” signed by the medical directors of the coronary care unit (CCU). Because time is of the essence in treating these patients, the response teams that were developed had to be prepared to manage this new responsibility. Nurses were offered new programs, and they responded promptly to the courses that were developed to teach nurses advanced cardiac anatomy and physiology, electrocardiography, and how to read cardiac monitors. They acquired competency in the recognition of life threatening arrhythmias and their management with defibrillation, the initiation of intravenous lidocaine infusion, and the assessment of responses to stand by order” interventions.

### THE RESPONSE BY NURSING TO THE DEMANDS OF CARDIOVASCULAR CARE

Nurses proved to be most eager to assume these new expanded roles. In order to maintain expertise, the development of what were called “special interest groups” took place. Nurses in these groups met and invited experts to speak to them on numerous topics related to the care of cardiac patients. When pacemakers and other advanced intervention became more commonplace, nurses acquired the expertise necessary to practice safely and confidently.

#### Special Interest Groups

The special interest groups that were started initially within the nursing unit, evolved to encompass the institution and then community-wide or city-wide planning. Over

Table 1. Evolution of a Specialty

• Early 1960s –	cardiac units open, patients' outcomes improve
• Mid 1960s –	nurses take over care of patients requiring critical care
• 1969 –	American Association of Cardiovascular Nurses (AACN) formed
• 1971 –	name changed to American Association of Critical-Care Nurses
• 1975 –	AACN Certification Corporation is established
• 1976 –	First administration of the CCRN certification examination
• 1984 –	First role-delineation study conducted by a nursing certification organization to validate the CCRN exam
• 1989 –	Competence Statements for Critical Care Clinical Nurse Specialists developed by the AACN CNS special interest group and adopted by the AACN Board of Directors
• 1993 –	AACN Synergy Model for Patient Care introduced
• 1995 –	ACNP Scope and Standards jointly developed by AACN and ANA
• 1996 –	Acute Care Nurse Practitioner certification examination jointly developed by the AACN and ANCC
• 1997 –	CCRN job analysis indicates that 40% of CCRNs are practicing outside of the traditional four walls of the ICU
• 1998 –	Job analysis conducted to study the role of the CNS in acute and critical care.
• 1999 –	AACN Certification Corporation launches Acute and Critical Care Clinical Nurse Specialist certification examination
• 2002 –	AACN publishes Scope of Practice and Standards of Professional Performance for the Acute and Critical Care Clinical Nurse Specialist
• 2003 –	Comprehensive study of critical care nursing practice compares CNS and ACNP practice, identifies entry-level critical-care competencies, and defines nursing competencies for care of the progressive care patient
• 2004 –	Progressive Care examination launched
• 2004 –	Job analyses begin on the Cardiovascular and Cardiology subspecialty certification examination
• 2005 –	Plan development of Nurse Practitioner certification examination and Interventional Cardiology subspecialty certification examination
• 2006 –	Plan development of Entry-level Critical Care certification examination.

AACN = American Association of Critical-Care Nurses (formerly American Association of Cardiovascular Nurses) ; CCRN® = CCRN® examination for Advanced Practice Certification for the Clinical Nurse Specialist in Acute and Critical Care; CNS = Clinical Nurse Specialist; ACNP = Acute Care Nurse Practitioner; ANA = American Nurses Association; ANCC = American Nurses Credentialing Center; ICU = intensive care unit.

time, their educational needs took on larger proportions, and a higher level of organization was needed. A new specialty nursing organization emerged called the American Association of Critical Care Nurses (AACN). **The AACN became** incorporated as a national not-for-profit organization, with

regional and local chapters that developed all over the US and extended overseas. The association has served nurses at all levels of professional preparation since its establishment in 1969. Along with the development of the AACN's educational goals and programs, recognition of the need for professional standards and competencies emerged and a professional journal, *The Heart and Lung* – the official journal of the AACN – was established. AACN serves, as a model for many other specialty nursing groups that fill a variety of nursing specialty needs.

### Certification Programs and Continuous Education

As needs for continuing education were identified, the AACN developed an annual conference called the National Teaching Institute, which evolved to include semi-annual leadership development workshops that were also made available to the membership. Certification through examinations was developed in order to ensure uniform minimum standards for practice. Cardiopulmonary certification (CPR) and Advanced CPR were concurrently offered by hospitals, the Red Cross, and other organizations to prepare nurses in these necessary techniques.

### The Preparation of Nurses

In the US, nursing preparation historically has taken the form of a number of different entry-level programs. Initially, nursing education was hospital-based rather than university-based and was usually a 3-year program of study terminating in the award of a Diploma of Nursing. In response to a nursing shortage and the need to prepare nurses during and after World War II, the concept of the Associate Degree (AA) in Nursing evolved with the intention of providing nursing education at the community college level. A graduate with an AA in Nursing could practice nursing and, if she or he so desired, could return at a later date for 2 additional years of education at a college of nursing to earn a Bachelor of Science degree. In the 1960s, a number of university-based baccalaureate programs of nursing started to offer senior nursing course electives in coronary care or critical care nursing to better prepare new nursing graduates for roles in these settings (Sivarajan E 1980)

Cardiovascular Nursing developed as an option for specialization in graduate education in the 1970s. As a result, the role of Clinical Nurse Specialist (CNS) in Advanced Nursing Practice (ANP) emerged in many Schools of Nursing in US colleges and universities.

### RESPONSE BY ORGANIZATIONS

Several organizations have been highly responsive in their

efforts to support Advanced Nursing Practice with the goal of maximizing patients' outcomes, including:

#### **American Association Of Critical Care Nursing (AACN)**

The AACN has the mission of providing its members with high-quality programs. These include:

- **Professional Education** - consisting of continuing education programs.
- **National Teaching Institutes** – which constitute a large conference bringing to the AACN membership the most up-to-date information about all areas of critical care as well as about teaching and leadership aspects of critical care nursing.
- **Regional Meetings** – which have taken the form of leadership development.
- **Local Chapters** - which have been formed to offer education for nurses who are unable to travel and which encompass local and regional issues relevant to critical care nursing.

Details of each of these programs can be found on the Internet at [www.aacn.org](http://www.aacn.org).

#### **American Heart Association (AHA)**

AHA is a not-for-profit organization with the distinct mission of reducing morbidity and mortality from CVD and stroke by offering community education as well as professional education programs. These goals are accomplished through activities that include an annual meeting consisting of scientific sessions that provide a forum for research presentations, education, and networking among professionals committed to cardiovascular patient care or research. The programs include:

- **Research Presentations** – presentation of original research relevant to patient care.
- **Cardiovascular Seminars** – seminars on a series of related topics with an emphasis on clinical practice issues.
- **How-to Sessions** - practical information that aids the participant with specific clinical expertise.
- **Meet the Expert** - opportunities to discuss with experts matters relevant to clinical challenges.

Additionally, the AHA has an extensive Internet program on a wide range of topics to provide a single source of credible, free information for patients and health professionals at [www.americanheart.org](http://www.americanheart.org). Topics include scientific statements, guidelines, and other information.

#### **American Association Of Cardiovascular And Pulmonary Rehabilitation (AACVPR)**

The AACVPR is an organization that supports professionals from the many disciplines that are engaged in service, research, and/or education related to prevention of and rehabilitation for cardiac and pulmonary conditions. This group holds annual conferences, provides a scientific publication as a benefit for its professional membership, develops standards for practice, and compiles a directory of cardiac rehabilitation programs for use in the referral of patients. It can be found on the Internet at [www.aacvpr.org](http://www.aacvpr.org).

#### **Preventive Cardiovascular Nurses Association (PCNA)**

This is a relatively new educational nursing organization that aims to provide programs and materials for nurses to assist them in training for and implementing evidence-based methods for risk-factor reduction and services such as the management of lipid disorders, hypertension, and diabetes, among others. It can be found on the Internet at [www.pcna.net](http://www.pcna.net).

#### **The American College Of Cardiovascular NURSES (ACCN)**

A nonprofit organization formed in 1991 to provide cardiovascular nurses with a professional organization directed at the educational needs of the specialty of cardiovascular nursing, the ACCN defines and establishes the scope of cardiovascular nursing practice while recognizing the role of other organizations that have developed a scope of practice for nursing or a subspecialty within the nursing profession. Information about the ACCN can be found on the Internet at [www.accn.net](http://www.accn.net).

#### **Society Of Invasive Cardiovascular Professionals (SICP)**

A nonprofit organization established to support the highest quality of patient care given by all invasive cardiac cathlab professionals; the SICP has led in professional practice and defined a core curriculum for cardiovascular professionals. The society provides educational opportunities; monitors relevant legislative issues, and maintains relationships with other organizations such as the American College of Cardiology, the Society of Cardiac Angiography and Interventions, the American Society of Radiological Technologists, and the American Board of Nursing. Information about the ACCN can be found on the Internet at [www.sicp.com](http://www.sicp.com).

## JOURNALS

A variety of general and specialty-specific journals provide additional sources of information for the nurse specializing in cardiovascular care. Some of these specialty journals are:

- Progress in Cardiovascular Nursing
- Journal of Cardiovascular Nursing
- Journal of Cardiopulmonary Rehabilitation
- American Journal of Critical Care Nursing
- European Journal of Cardiovascular Nursing

## STANDARDS, QUALITY CONTROL, AND CERTIFICATION

Numerous organizations have provided standards and criteria for quality control initiatives over the years. Examples of standards for cardiovascular nursing practice include the American Nurses Association's Scope of Practice for Cardiac Rehabilitation (Table 3 & Table 4), the AACN Certification Examination, and the state-specific or National CNS Certification.

### Scope and Standards of Nursing Practice

Newly revised, the classic publication from the American Nurses Association (ANA) – **addresses both advanced and general clinical practice and the non-clinical practice of nursing role specialties.** It encompasses all aspects of current professional nursing practice, discusses the scope and prospects of practice, and delineates practice standards and professional performance standards and their measurement criteria. Contains 16 ANA; the scope of practice can be seen in Table 2. The core role preparation for the CNS is depicted in Figure 2. the AACN publication Scope of Practice and Standards of Professional Performance for the Acute and Critical Care Clinical Nurse Specialist (AACN Product #128101)

### Legal Concerns Surrounding Advanced Nursing Practice

#### *Credentialing and Regulation of Advanced Nursing Practice*

Credentialing is a term that encompasses several important aspects of nurses' preparation to ensure that individuals, programs, and institutions have a resource for the purposes of establishing or enforcing standards, protecting the public, and improving quality of care (Hamric et al. 2000). **It can include** graduation from an approved graduate nursing program; national certification, state licensure, or recognition as a registered nurse

(RN) or **Advanced Nursing Practice; an insurance-issued practice provider number; and approval of hospital practice privileges.**

#### *Certification*

National certification for ANPs serves several purposes, including regulation.

ANPs are advanced practice nurses who diagnose and manage common primary care problems for adults. They work in a variety of community-based practice settings, including community health clinics, health maintenance organizations, specialty clinics, correctional facilities, and private medical practices. Many ANPs specialize in an area of interest, such as HIV/AIDS, pulmonary care, or integrated and complementary health.

Many, but not all, APN specialties have specific requirements for adequate numbers of mandatory hours of practice that are required between the years of recertification in order to make sure that the ANP maintains currency and competency through regular practice. These certification requirements are aimed at providing a minimum level of quality control for advanced practitioners.

#### *Regulation*

In the US, regulation of advanced practice nursing is accomplished through statutes, the rules and regulations of state nurse practice acts, certification, peer review, and self-regulation. Nurse practice acts are administered under the authority of state governments to ensure public safety.

#### *Nurse Practice Act*

Nursing practice in the US is governed by state licensure. Most states have developed mandatory continuing education units required for the renewal of the nursing license; for example, the state of California requires evidence of completion of 30 units every 3 years. There are additional requirements for the APN. Information about licensure in California is found on the Internet at <http://www.rn.ca.gov/> <http://www.dca.ca.gov/>

## ACADEMIC PROGRAMS

The academic programs that produce specialty-oriented nurses for graduate nurses have a great deal of variability in the preparation they offer. An example of the domains of study and the scope of practice are outlined briefly in the following sections. Efforts have been made over the years to standardize graduate programs to achieve a uniform graduate preparation

of nurses, but these efforts have met with equivocal results. A suggested general educational preparation for CNS includes: theoretical study, science, skills, clinical practice, research, and other foundational background, such as ethics, legislative issues, economic concepts and legal concepts (Sparacino, 1994 p. 300). For APNs, the curriculum includes specialty practice and content, and lastly the content specifically required to the practice setting. An example of the preparation that the University of California, San Francisco program uses for the preparation of cardiovascular nurses is presented in Appendix A.

### Clinical Nurse Specialist

A core curriculum that the CNS nursing program requires to produce a nurse prepared for Advanced Nursing Practice at the master's degree level consists of different components:

#### Educational Preparation

Education of the CNS is at the graduate level in nursing. The education program assists the CNS to integrate the collaborative model of care into a coordinated patient-management plan and develop competencies within each of the spheres of influence of the CNS. The curriculum requirements are delineated in *The Essentials of Master's Education for Advanced Practice Nursing* (Figure 1) The advanced practice nursing student prepared in a direct care-provider role must obtain sufficient clinical experience to provide depth and breadth of practice in a specific specialty or with designated populations. The acute and critical care CNS program should provide sufficient clinical experiences to prepare the graduate to provide for public safety. When preparing a graduate who will provide direct client care, make diagnoses, prescribe, and assume accountability for clinical care, the educational program should provide the student with opportunity to master knowledge of health care problems and

to apply these skills in extensive clinical practice. The student should have a minimum of 500 hours in direct clinical practice during the educational program.

#### Certification

Certification of the CNS is recognition of the increasing competence of the profession. One component of certification is eligibility, related to successful completion of the program of study, knowledgeable grasp of the course content, and a specified amount of supervised clinical practice. The other component of certification is knowledge determined by passing a written examination that tests the knowledge base for the selected area of advanced practice.

Through use of a consistent definition for the acute and critical care CNS, criteria to review and assess competence for CNS practice, and CNS educational requirements, certification will assure the public that the acute and critical care CNS meets consistent standards of quality.

#### Advanced Practice Nursing

##### Advanced Practice Licensure

The CNS is licensed to practice as a registered nurse in the state in which the nurse practices and is subject to the state's legal constraints and regulations. Many states have additional requirements that the CNS must satisfy to practice or be recognized. 22 State Boards of Nursing utilize the CCNS® examination for Advanced Practice Certification for the Clinical Nurse Specialist in Acute and Critical Care as one criterion for advanced practice licensure or designation.

**Specialization.** The acute and critical care CNS practices in any setting in which patient-care requirements include complex monitoring and therapies, high-intensity nursing interventions, or continuous nursing vigilance within the full range of high-acuity care. Furthermore, she or he may practice in a clinic with primary responsibility for assessment and management of cardiovascular risk factors. See example of preparation for the role of APN.

**Prescriptive Authority.** The CNS provides direct patient care, such as assessing, diagnosing, planning, and intervening, which includes prescribing pharmacological as well as non-pharmacological treatment of health problems.

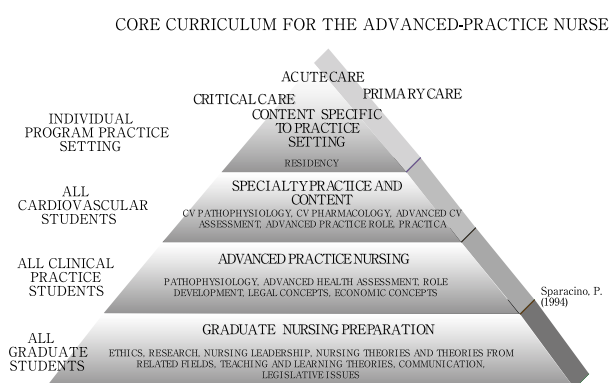


Figure 1. Academic Curriculum for Master's Degree in Cardiovascular Nursing: Clinical Nurse Specialist Role

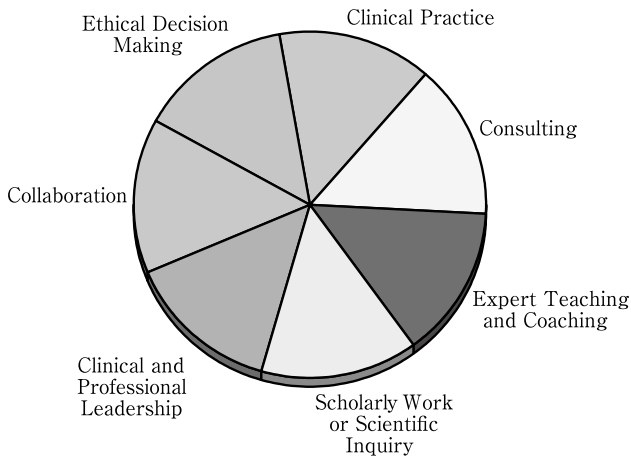


Figure 2. Core Role Preparation for the Clinical Nurse Specialist

Table 2. Scope of Practice and Standards of Practice\*

<p><b>Scope of Practice.</b></p> <ul style="list-style-type: none"> <li>• Direct Practice</li> <li>• Expert Coaching and Guidance</li> <li>• Consultation</li> <li>• Research</li> <li>• Collaboration</li> <li>• Ethical Decision-Making Skills</li> <li>• Leadership: Empowerment, Change Agency, and Activism</li> </ul> <p><b>Standards of Practice</b></p> <ol style="list-style-type: none"> <li>1. Assessment</li> <li>2. Diagnosis</li> <li>3. Outcomes Identification</li> <li>4. Planning</li> <li>5. Implementation</li> <li>6. Evaluation</li> </ol>
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\*From: Hamric AB, Spross JA, Hanson CM. *Advanced Nursing Practice: An Integrative Approach*. 2nd Edition. Philadelphia: W.B. Saunders, 2000.

**Nurse Competency.** APNs have a broad scope of general as well as specific education that prepares the individual nurse with beginning competency in the domains of clinical judgment, advocacy and moral agency, caring practices, collaboration, systems thinking, responsiveness to diverse populations, clinical inquiry, and facilitation of learning. With practice, the APN will move from a novice to an expert clinician (Benner, 1984)

**Graduate Nursing (In General)**

All graduate students receive the following content as part of the core of their foundational preparation in lectures and a discussion-seminar format: ethics, research, Nursing leadership, nursing theories and related fields, teaching and learning theories, communication, and legislative issues.

*Preparation for a Role in Secondary Prevention and Cardiac Rehabilitation*

This generic masters of science degree program is tailored to emphasize the skill sets needed to practice in the advanced practice setting and to take a more independent practice role in cardiac prevention and rehabilitation (Table 3 &4) (Figure 3). This role requires a greater focus on public health, principles of

Table 3. Areas of Study to Gain Specific Expertise in Cardiac Rehabilitation Nursing

<p><b>SMOKING</b>                  Assessment of Dependence                  Cessation Interventions</p> <p><b>EXERCISE PHYSIOLOGY</b>                  Exercise Testing and Interpretation for Prescription</p> <p><b>LIPID DISORDERS</b>                  Assessment and Management</p> <p><b>HYPERTENSION</b>                  Assessment and Management</p> <p><b>DIABETES MELLITUS</b>                  Assessment and Management</p> <p><b>PSYCHOSOCIAL RISK FACTOR DEPRESSION, SOCIAL ISOLATION, STRESS</b>                  Assessment and Management</p> <p><b>GENDER AND RACIAL/ETHNIC FACTORS</b>                  MOTIVATIONAL INTERVIEWING</p> <p><b>COMPLIANCE COUNSELING</b></p>
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Table 4. Scope of Practice for Cardiac Rehabilitation

<ol style="list-style-type: none"> <li>1. Quality of Practice</li> <li>2. Education</li> <li>3. Professional Practice Evaluation</li> <li>4. Collegiality</li> <li>5. Collaboration</li> <li>6. Ethics</li> <li>7. Research</li> <li>8. Resource Utilization</li> <li>9. Leadership</li> </ol>
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Figure 3. Component of Cardiac Rehabilitation

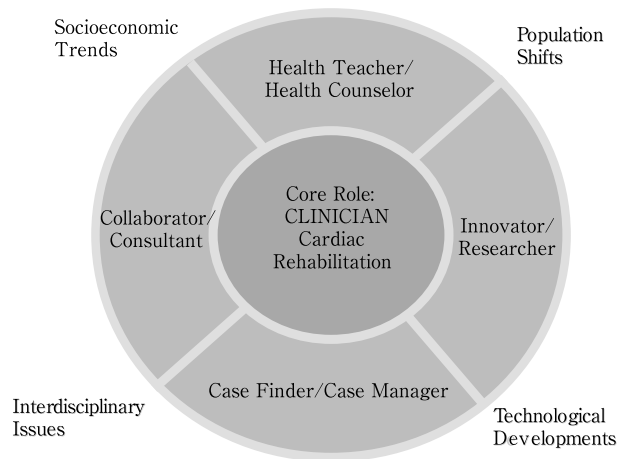


Figure 4. Roles of the Cardiac Rehabilitation Nurse



Figure 5. Tobacco Free Nurses

population sciences, background in community nursing skills, greater autonomy, and skills in working with the family and the community in the outpatient setting or in the patient's home (Figure 4).

#### SUMMARY

Once a 3-year degree in the US, the discipline of nursing has evolved to require graduate education beyond the bachelor's degree. This evolution occurred in response to the scientific, technological, and practice advancements that have taken place over the last 40 years. As a result, contemporary nursing in the US requires an interdisciplinary understanding of a variety of scientific specialties as well as community practice and organizational structure. Nurses in the US are heavily regulated by state and national regulations, often requiring specific certifications in addition to educational degrees, to ensure their

competency and proficiency.

Numerous models for cardiovascular nursing exist in the US, England, and throughout the world, which will assist the Japanese in the understanding of Cardiovascular Disease and Stroke. Leaders of nursing in Japan understand the knowledge, experience, and competencies required of nurses specializing in cardiovascular disease and stroke. Learning from specialties already established here in Japan can only enhance these models.

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#### OTHER USEFUL RESOURCES

- Board of Registered Nursing; 400 R Street, Suite 4030; Sacramento, CA 95814;  
Phone: 916-322-3350; TDD: 916-322-1700; Fax: (916) 327-4402. <http://www.rn.ca.gov/npa/npa.htm>
- AACN, Certification Corporation; 101 Columbia, Aliso Viejo, CA 92656-4109;  
Phone: 1-800-899-2226 or 949-362-2000
- California Nursing Practice Act with Regulations and Related Statutes & CD  
[http://bookstore.lexis.com/bookstore/catalog?action=product&rod\\_id=49091](http://bookstore.lexis.com/bookstore/catalog?action=product&rod_id=49091)
- <http://www.americanheart.org><http://www.aacn.org><http://www.certcorp.org/>
- <http://www.pcna.net/index.php>
- <http://www.nih.gov/http://www.sicp.com/html/library/scope.html>