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The Role of the Medical Reserve Corps in Nursing Education

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Introduction

This article describes a partnership between a university health services and the school of nursing to form a Medical Reserve Corps (MRC) and the opportunities that the partnership has provided for learning experiences in emergency preparedness and response to mass casualty incidents (MCI). Knowledge and experiences related to suitable and timely response to MCI are basic to nursing practice and must be included in educational programs (International Nursing Coalition for Mass Casualty Education 2003). MCI refer to catastrophic events that include natural incidents such as hurricanes and floods, unintended events such as chemical spills and fires and deliberate acts such as terrorism. All nurses should have basic knowledge of emergency preparedness and be able to demonstrate basic competencies in emergency response.

Framework for Educational Preparation in Emergency Preparedness

In 2008, The American Association of Colleges of Nursing (AACN) published *The Essentials of Baccalaureate Nursing Education for Professional Nursing Practice* that provides the framework for the baccalaureate nursing curriculum of the 21st century. Two of the nine essentials (VII and IX) that outline outcomes expected of baccalaureate nursing graduates specifically relate to the knowledge and experiences needed for emergency preparedness, response to MCI, and other emergency situations. The National Council of State Boards of Nursing (NCSBN) published the revised test plan structure for the 2010 National Council Licensure Exam for Registered Nurses (NCLEX-RN[®]) which describes nursing actions and competencies and focuses on clients in all settings. One of the four client need categories on the test plan framework describes knowledge, skills and abilities essential to providing a safe and effective care environment. Related content in this subcategory includes emergency response. In addition the Association of State and Territorial Directors of Nursing (ASTDN) (2007; Jakeway, LaRosa, Cary, & Schoenfisch, 2008) describe twelve competencies which clarify the expertise that public health nurses contribute to emergency preparedness and response.

The *Essentials* (AACN, 2008) provides direction for emergency preparedness and disaster response curriculum development, and the NCLEX-RN[®] (NCSBN, 2010) specifies the knowledge and skills fundamental for entry level nursing practice related to emergency response. The ASTDN further describes the need for participation in the planning,

evaluation and exercising of local and statewide drills as well as familiarization with the chain of command structure used in emergency response. However, providing learning experiences that enable students to apply cognitive and performance skills needed for competent practice in the area of emergency preparedness and response to MCI require creative strategies. The MRC provides diverse and unique opportunities for students to experience emergency preparedness and responses to MCI first hand and to develop the competencies required for entry level practice.

Development of a University-Based MRC

The MRC, first launched in 2002, is a community-based civilian volunteer program that helps reinforce the public health infrastructure of communities nationwide. It is a national network of volunteers headquartered in the Office of the U.S. Surgeon General and dedicated to ensuring hometown security (www.medicalreservecorps.gov). Nationwide, there are more than 700 MRC units and almost 150,000 volunteers. Each unit is organized and trained to address a wide range of challenges, from public health education to disaster response.

In 2005 the school of nursing at a large residential university campus in a small rural town setting voted unanimously to partner with the university health services to create a university-based MRC and to incorporate MRC activities into its traditional undergraduate and second bachelor's nursing degree curricula. This partnership created one of the first curriculum-incorporated MRC in the country with more than 300 members. Three other universities have also formed MRCs: the University of Virginia School of Medical in 2003 (<http://www.uvamrc.org/>); Vanderbilt University School of Nursing in 2005 (<http://www.mc.vanderbilt.edu/reporter/index.html?ID=3066>); and Lander University Department of Nursing in 2009 (<http://www.lander.edu/ur/news/2009/10/20091006-a.html>). The two founders and co-directors of the university-based MRC include the public health nurse employed by the health services and a faculty member from the school of nursing. Memoranda of understanding (MOU) describe agreements between the university-based MRC and local agencies.

The purpose of the university-based MRC is to establish teams of faculty, students, staff and volunteers of nursing, medical and public health professionals and lay people who can contribute skills and expertise throughout the year and at times of emergencies (www.umass.edu/uhs/health/mrc/). Volunteers also include student Emergency Medical Technicians, and ROTC cadets. Objectives of the university-based MRC include:

1. Supporting local public initiatives by promoting disease prevention, improving health literacy, eliminating health disparities, and enhancing public health preparedness.
2. Assisting the university health services, local hospitals, and health departments with surge personnel needs.
3. Participating in mass prophylaxis and vaccination exercises, community disaster drills and real events.

4. Training with university and local emergency response partners.
5. Providing educational and leadership opportunities for students, staff and faculty in emergency preparedness.

The MRC provides educational, research, leadership and clinical opportunities for students, faculty and volunteers in the fields of nursing, public health and emergency preparedness.

Requirements of all MRC units include compliance with the National Incident Management System (NIMS), completion of Federal Emergency Management Agency (FEMA) training in the National Incident Management System (NIMS) and the Incident Command System (ICS) as well as a program of ongoing training. NIMS provides a core set of doctrines, concepts, principles, terminology, and organizational processes that enables a unified approach to effective, efficient, and collaborative incident management. ICS is the management structure required by NIMS that describes the roles and functions of the command structure and common responsibilities at an incident (www.fema.gov/pdf/nims/nims_training_development.pdf). Compliance with NIMS enabled the university-based MRC to receive federal grants to support activities and drills. NIMS compliance requires that students and volunteers complete required training in NIMS and ICS and that functional drills follow NIMS guidelines.

The curriculum integrates elements from the *Essentials* (AACN, 2008), NCLEX-RN® test plan, and ASTDN (2007) competencies related to emergency preparedness and disaster response. This provides students with the knowledge and skills to use appropriate assessment, clinical judgment and decision making skills during disasters, mass casualty events, and other emergency situations. The MRC supports curricular elements related to emergency preparedness and disaster response and provides hands-on learning experiences. Each semester schedules for drills, training and activities are negotiated with faculty and incorporated into appropriate syllabi.

One of the NIMS competencies requires the completion of ICS 100 Introduction to ICS (<http://www.fema.gov/library/viewRecord.do?id=3193>). To satisfy this requirement, all MRC members and staff complete online FEMA courses. MRC members also attend a three hour MRC 101 course offered by the university-based MRC co-directors and university staff designed to review NIMS/ICS content, provide basic information related to the goals and purpose of the MRC and the responsibilities of members to satisfy curriculum and activity requirements. Every semester students, faculty and volunteers participate in training exercises where they apply knowledge and skills learned in emergency preparedness.

The MRC is considered a regional and potentially a national asset in times of emergencies. While student participation in the MRC is a mandatory component of the nursing curriculum, participation during an actual emergency is voluntary. A survey conducted by the school of nursing in 2006 indicated that an overwhelming majority of students (81% of 191 respondents) would be willing to participate in a response if asked.

The future of the MRC is contingent upon the necessary funding to support administrative functions, drill activities, and training. While the school of nursing and health services

provided a small budget and office for MRC activities is not sufficient to sustain the activities. Small grants (\$3,000-12,000) each year help to support activities but loss of funding threatens the future of the MRC.

Activities of the University-based MRC

MRC activities correspond with the objectives of the MRC and the curricular needs of the undergraduate students. Activities include information about environmental factors, the risks they pose to self and patients, and the various roles and responsibilities involved in emergency preparedness and disaster response. These planned activities provide students with learning experiences and collaborative role models that help prepare them for practice in complex, changing healthcare environments.

Each fall nursing students, faculty and staff participate in campus-wide flu clinics that are set-up as functional drills to test emergency dispensing site capabilities. Each spring, ROTC, nursing, public health, emergency medical technician students, faculty, volunteers and staff participate in large functional drills. The drills are set-up under NIMS guidelines to test communication processes and equipment, collaboration with multiple agencies, effectiveness of the ICS, procedures, traffic flow, throughput of people/hr, and just-in-time training for an emergency dispensing site event. Frequently the drills include the emergency planning units in surrounding communities, local hospitals, fire, police and hazmat units. During these drills students from campus are solicited to serve as patients. Student patient volunteers are given index cards that describe the role they will play and they are coached about their function in the drill. Nursing students provide instructional presentations that educate victim volunteers about emergency preparedness. Typical topics included: signs and symptoms of anthrax exposure and what to do if exposed; myths and realities about influenza; information about meningitis on college campuses and the importance of vaccination; and emergency communication strategies.

Senior undergraduate nursing students enrolled in the clinical practicum community intervention course with the co-directors of the MRC worked on a variety of community-focused health education projects. The students are involved in the organization and management of the large functional drills and participate in the ICS structure assuming leadership roles in logistics and operations. The following are a few selected examples of student experiences:

- Developed just-in-time training for over 300 nursing students who participated in functional drills that test the ability of the university to respond to such emergencies as a pandemic influenza outbreak or an Anthrax terrorism incident. Training included immunization procedures, medication administration, and the roles used in the ICS.
- Developed and pilot tested a process to monitor hourly throughput of injectable doses of a vaccine administered during a large functional drill. During a public health emergency that involves the distribution of pharmaceutical drugs from the national stockpile, vaccine administration sites are required to report hourly throughputs to the Centers for Disease Control and Prevention (CDC). The CDC

monitors hourly throughputs to determine appropriate vaccine distribution. This project provided students with the opportunity to work with health service staff to develop a process that meets the requirements of the CDC and could be used in the event of an emergency.

- Produced a just-in-time training video used by regional MRCs to train volunteers in the proper technique for injectable vaccine administration.
- Developed and distributed a survey tool to study the knowledge, beliefs and practices of undergraduate students related to community acquired methicillin-resistant *Staphylococcus aureus* (MRSA). Information from the survey was used by health education staff at the health services to develop appropriate interventions to decrease the spread of community acquired MRSA on the campus.
- Presented a short educational program to a 300 student basic public health class and to several intramural soccer teams related to community acquired MRSA and the importance of personal hygiene, reducing contact with bodily fluids through the sharing of equipment or water bottles, and properly covering all open areas on the skin.
- Developed a health education campaign to be used by resident assistants in the dormitories to educate students about flu facts and health care. The educational campaign was based on the feedback from a survey tool the students developed and distributed at two dining common's tabling events to study the knowledge, beliefs and practices of undergraduate students related to the seasonal flu.
- Developed and pilot tested a survey tool that is used by regional MRCs to evaluate the attitudes, beliefs and practices of individuals related to 72 hour emergency preparedness.

Implications

Student learning experiences included a variety of other concepts such as: leadership, organizational systems, evidenced-based practice, information management, patient care technology, interdisciplinary communication and collaboration, regulatory processes, and patient values. The MRC also provides opportunities for doctoral preparation that is research (PhD) or practice focused (DNP). For example, select doctoral students worked with the co-directors on projects to enhance public health preparedness. Projects included: the development and implementation of a NIMS compliant evaluation process for a large functional drill that tested the ability of the university and surrounding 26 towns to respond to a meningitis outbreak; and the development of operational policies and procedures for an emergency dispensing site with the capacity to distribute 25,000 injectable vaccines within a 48 hour time frame.

Conclusion

A university-based MRC provides unique and diverse opportunities to learn about population health from the perspective of environmental factors and the risks they pose to self and communities. The MRC engages faculty, students, university personnel, volunteers

and the community in collaborative initiatives that prepare students to use appropriate assessment, clinical judgment and decisions making skills during disaster, mass casualty, and other emergency situations. Collaboration between academia and stakeholder communities provides learning experiences that build the evidence-base and science-based framework for community emergency response and offers real life opportunities to learn and practice the skills necessary for emergency preparedness and response to MCI. Effective emergency response to MCI represents one of the greatest challenges to our nation's emergency response infrastructure.

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