Nurse Leaders as Disruptive Innovators in Cardiopulmonary Resuscitation Competency

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Improving the rate of survival among the 209,000 patients with an in-hospital cardiac arrest (IHCA) each year in the United States[1] depends on the provision of high quality cardiopulmonary resuscitation (CPR). Leading health care advisories, such as those of the Institute of Medicine[2] and the American Heart Association (AHA),[3] suggest that the current survival rate of 22.3% from IHCA[4] can be improved through organization- and systems-level continuous quality improvement initiatives. As a result of the high number of arrests with low survival rates and new initiatives focusing on continuous improvement, likely cardiac arrest and the provision of high quality CPR will be a Centers for Medicare & Medicaid core measure.

Improving the care of patients experiencing cardiac arrest begins with training providers to effectively deliver high quality CPR. Even with sophisticated simulation- and voice-assisted manikins, the variability in survival rates between and among health care organizations suggests that the quality of CPR education needs improvement. Over the past decade, the AHA has added new and innovative methods for training CPR providers. Before the development of the AHA HeartCode™ programs, CPR providers attend classroom-based training courses consisting of lectures, video modules, skill practice, and testing with a CPR manikin. The fast-paced nature of the basic life support (BLS) renewal course allows for minimal differentiation of instruction to meet the diverse needs of all learners and levels of skill performance.

Development of the AHA HeartCode programs removed the didactic component of life support training from the classroom and placed it online for providers to complete at their own convenience and pace. The incorporation of game-based case scenarios with avatars provides a method of engaging the learner with the educational material in an active manner. Following completion of each scenario, the provider receives individualized feedback on correct and incorrect actions. For those requiring extensive feedback, the scenario is repeated until the provider achieves a passing score. An additional advantage is that the provider can review case scenarios at any time over a 2-year period.

After successful completion of the traditional classroom-based training course, or the HeartCode program, providers register for an instructor-led skills practice and testing session conducted by a certified AHA BLS instructor. Alternatively, the provider may complete the skill practice and testing session on a manikin that provides real-time feedback to the provider on the quality of skills. After successful skills demonstration, the provider receives a CPR card valid for 2 years.

CPR skills begin to decay quickly following initial training without on-going reinforcement; however, research is inconclusive as to the exact point at which skill decay begins. What research does suggest is that more frequent provider training is required for competence in high quality CPR skill performance.[5,6] Further, the 2015 AHA Guidelines for CPR and Emergency Cardiovascular Care noted that current 2-year training intervals are suboptimal.[3] Combined with evidence suggesting the need for more standardized evaluation of provider skills,[7,8] the newest AHA innovation, the Resuscitation Quality Improvement (RQI)™ program, incorporates both standardized real-time evaluation of CPR skill performance with training on a more frequent basis to improve CPR provider competence in skill performance during an actual resuscitation.

THEORY TO PRACTICE: TRANSLATION

As a twice-designated Magnet® organization, innovation and new knowledge are embedded as part of our culture throughout the organization. The professional practice model (based on Joanne Duffy's Quality Caring Theory)[9], the competency model (based on Donna Wright's Competency Model)[10], and Ray's theory of Bureaucratic Caring[11] framed the decision to pursue an innovation in the context of quality, efficiency, financial and high reliability outcomes as part of a dynamic conversation between humanistic caring and its antithesis. The theory recognizes that nursing is a part of an ecosystem that includes legal, economic, political, and technology components, making them complex systems that are driven by multiple stakeholders, dynamics, cultures, and bureaucracy.

Ray's theory acknowledges the paradoxical struggle of nurses in meeting the needs of patients and the need to balance that with modern health care system economic pressures like never before. The triple aim has challenged nurses to be a part of transforming the health care system to provide better outcomes for patients and populations while achieving lower cost per capita. However, the overarching moral imperative of providing care that is evidence based, cost efficient, equitable, and patient centered has not changed. It does, however, produce new challenges to executives in the current transformation of the health care system driven in large part by the Affordable Care Act and the triple aim.

The professional practice model and nursing theory can, if acculturated in the organization, assist in valuing and prioritizing financial and human resources. The common language of Duffy's Quality Caring Model allows for the vetting of proposed programs and related practice changes. The model allows for the integration of evidence-based practice with caring in order to produce the best outcomes. Reviewing new technology proposals or changes in practice through this lens allows for a clearer understanding of the effects on the nurse-patient relationship, which is sacred in the model and the foundation upon which outcomes are achieved. Technology should enhance the patient-nurse relationship by allowing for a deepening of the caring behaviors and actions that milieus create for maximal healing, which require the authentic presence of the nurse.

In addition, the organization's competency model that empowers clinicians to select and control their own competencies provided additional alignment as the future state of the program and technology allowed for real-time staff management of the agreed-upon collaborative CPR competency. The model also allowed leaders to create the conditions for success through the design of the program that encompass, not only the competency component, but the commitment component as well, related to integrating into daily work and self-accountability for performance.

Our journey to becoming a high reliability organization provides a framework for the selection of assistive technology that can better produce reliable quality outcomes. The understanding of skill-based areas in the practice of nursing as it relates to physical performance of high quality compressions could not realistically be assessed without bias until the development of the Resuscitation Quality Improvement (RQI) program. One characteristic of highly reliable organizations is that they are resilient and relentless in their pursuit of excellence. Additionally, a preoccupation with failure drives the organization forward to constantly seek innovative solutions by listening closely to frontline staff and a deference to experts. Lastly, avoiding the temptation to oversimplify the causes or reasons, actively questioning the obvious and accepting the complexity of the problems and solutions are tenets of a highly reliable organization. Considering