This article presents suggestions for nurses to gain skill, competence, and comfort in caring for critically ill patients receiving mechanical ventilatory support, with a specific focus on education strategies and building communication skills with these challenging nonverbal patients. Engaging in evidence-based practice projects at the unit level and participating in or leading research studies are key ways nurses can contribute to improving outcomes for patients receiving mechanical ventilation. Suggestions are offered for evidence-based practice projects and possible research studies to improve outcomes and advance the science in an effort to achieve quality patient-ventilator management in intensive care units. (Critical Care Nurse. 2011;31[6]:46-50)

Although most of the technical aspects of managing the mechanical ventilator are the responsibility of respiratory care practitioners, nurses are responsible for the holistic care of patients, including management of common symptoms and responses to mechanical ventilatory support. To care for patients effectively, nurses must be comfortable and confident in their knowledge of basic principles of mechanical ventilatory support and must implement appropriate interventions to manage patients’ many responses to this common treatment effectively, which can be particularly challenging in nonverbal patients.

Three articles1-3 presented as a series in the June 2011 issue of Critical Care Nurse address selected aspects of caring for patients receiving mechanical ventilatory support based on the authors’ expertise and include an overview of mechanical ventilatory support;1 promoting effective communication with patients receiving mechanical ventilation,2 and an overview of complementary and alternative therapies for critically ill patients.3 The overall purpose of that series of articles was to empower and educate nurses with respect to caring for patients receiving mechanical ventilatory support. In addition to specific implications for nursing practice and research contained in each of the articles, we offer as a summary to the series additional suggestions to promote patient-centered care with an emphasis on implications for evidence-based nursing practice and implications for nursing research. We do so in order to enhance the art and science of caring for patients receiving mechanical ventilatory support so that quality outcomes can be achieved.

Implications for Evidence-Based Practice: Promoting Patient-Centered Care Through Education and Communication

Nurses must be supported and empowered to provide the best...
holistic care possible to patients receiving mechanical ventilation. It is the responsibility of nurses to compile many sources of information and work together with colleagues from medicine, respiratory therapy, speech-language pathology, physical therapy, and occupational therapy to optimize outcomes for these patients.

Grossbach and colleagues’ provided an overview of ventilator mechanics and the common patient-ventilator responses and issues that can occur and require management. Meaningful educational programs support competent performance and empower nurses to be more proactive in the care of patients receiving mechanical ventilation. The nurse plays a crucial role in providing patient-centered care to ensure adequate oxygenation and ventilation, breathing comfort, and patient-ventilator synchrony. Ventilator mechanics can be intimidating for both new nurses and experienced critical care nurses, particularly with the rapid changes in technology and the varying names for the same ventilator modes. Education is a key mechanism to promote patient-centered care.

**Education**

One method of empowering and educating nurses is through competency-based training and annual review of skills surrounding the care of patients receiving mechanical ventilatory support. We suggest the following strategies to enhance nurses’ knowledge, skill, and comfort in managing the patient and the mechanical ventilator, including both basic and more advanced education.

First, education programs should provide content that addresses basic knowledge of mechanical ventilators including common ventilator modes, settings, and their clinical application. An integral aspect of these education programs should include demonstration and opportunities for “hands-on” experience surrounding basic nursing care competencies for patients receiving mechanical ventilatory support.

More advanced education for more experienced nurses could be included in annual skill renewals including innovative delivery strategies to keep nursing staff apprised about newer ventilator modes, use of oscillators, automatic weaning programs, and innovations in mechanical ventilatory support to minimize lung injury for patients with severe respiratory failure.

Of crucial importance is the partnering with respiratory care services to foster sharing of knowledge and information of ventilator modes, ventilator dynamics, weaning, and new mechanical ventilators. Joint staff education sessions could be held to ensure that both groups of health care professionals are incorporating the latest evidence for the care of patients receiving mechanical ventilation while supporting interdisciplinary collaboration.

For nurses interested in learning about mechanical ventilatory support more in-depth, a “Vent Camp” experience could be offered that addresses more advanced content and experience with mechanical ventilation and patient management issues. Suggested learning strategies include the use of simulation and complex clinical scenarios.

**Collaboration With Patients Through Communication**

When patients are interviewed after receiving ventilatory support, the frustration experienced surrounding communication attempts with health care staff and family members is conveyed quite frequently. Grossbach, Stranberg, and Chlan have provided detailed information on strategies for promoting effective communication in nonverbal patients receiving mechanical ventilation. In order for communication enhancement strategies to become more meaningful and central in the delivery of patient care, we propose that communication strategies be routinely highlighted in shift change reports and assessments of ventilator patients.

Each patient should have a communication plan in place, which can be revised on a routine basis depending on the patient’s condition, that outlines the patient’s preferences and serves as a tool for conveying
For example, nurses could experience verbal communication is impaired. Patients to convey their needs when association for what it might be like for nurses to gain experience and appreciate what it might be for patients to convey their needs when verbal communication is impaired. For example, nurses could experience wearing a bilevel positive airway pressure mask and attempt to communicate discomfort or other basic needs to another nursing colleague. Another way for nurses to experience difficulty communicating and lip reading when orally intubated is to simulate the mouth being held open by using a padded bite block inserted between the teeth and secured around the face and head.

Patients who had received mechanical ventilatory support could be videotaped discussing their experiences; appropriate permissions would have to be secured. Such a powerful, first-hand account from patients could be used to facilitate discussions surrounding priorities for promoting patient-centered care among all health care professionals.

Although providing care for patients who are receiving mechanical ventilation can seem “routine” to nurses, it behooves us to keep in mind that this experience can be frightening and uncomfortable for patients and their families. In another article in the Pulmonary Care column in this issue of Critical Care Nurse, a critical care nurse conveys her experiences and recollections of receiving mechanical ventilation on several occasions for asthma exacerbation and reminds nurses to keep the central focus on the patient during this immensely stressful and fearful time. Many of her experiences surrounding being an intensive care patient are salient in promoting patient-centered care and collaboration through communication.

Implications for Evidence-Based Practice: Achieving Quality Outcomes

Evidence-based practice (EBP) is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. All health care professionals, including nurses, need to have access to up-to-date evidence or knowledge in order to maintain best practices. We propose a select number of areas for practice improvement and enhancement of the evidence base for nursing care of patients receiving mechanical ventilation to achieve quality outcomes.

A goal for patients receiving ventilatory support is to wean as soon and as safely as possible. What is the best evidence currently available in the area of effective practices for weaning? What is nursing’s role in contributing to successful weaning?

What are the most effective strategies for management of anxiety, pain, and patients’ positioning to promote weaning from mechanical ventilation? What are effective strategies for collaborating with respiratory care practitioners to promote professional communication to achieve weaning goals?

An important standard of care is to reduce ventilator time, thereby reducing complications such as ventilator-associated pneumonia, tracheal stenosis, and ventilator-induced lung injury. How can initiatives and practice standards best be tailored for an individual unit, for example, for prevention of ventilator-associated pneumonia?

Ventilator technology is frequently changing and has become very sophisticated and complex. Ventilator manufacturers and the respiratory care academic community have not adopted a standardized system for classifying and describing ventilation modes. What are the best ways for nurses to keep current with this complex technology?

The growing trend toward use of daily sedation reduction protocols and sedation assessment scales along with spontaneous breathing trials has implications for practice as patients receiving mechanical ventilation become more awake and alert. Likewise, more attention to sedative administration regimens has great relevance to nursing care and the management of these medications. These practice changes may result in more interaction and more requests from patients, which may be a challenge for busy nurses to deal with or have time for. What are the care processes or improvements...
that need to be instituted to support the added time nurses need to provide patient-centered care and effective communication?

Nurses already involved in or contemplating undertaking quality improvement and EBP initiatives can access data from many sources to locate the best available evidence and to tailor protocols to meet the needs of their patients. A few resources available to nurses for locating best practices related to the care of patients receiving mechanical ventilation or other EBP protocols include American Association of Critical-Care Nurses (AACN) practice alerts (www.aacn.org/practicealerts), the Joanna Briggs Institute (www.joannabriggs.edu), and the Cochrane Collaborative (www.cochrane.org).

### Implications for Nursing Research to Achieve Quality Outcomes

Several nursing groups have proposed research agendas and priorities related to patients receiving mechanical ventilatory support. Most prominent of these are the research priorities of the AACN, the American Thoracic Society (ATS) Nursing Assembly’s Research Priorities in Respiratory Nursing, and the National Institute of Nursing Research’s areas of emphasis related to symptom management (see Table).

Although many of these priorities are 10 years old or more, progress in moving the science forward to advance nursing care of patients receiving mechanical ventilation has been scant in some areas. For example, the ATS Nursing Assembly’s research priority surrounding methods for improving communication between patients and nurses still requires research attention. One of the utmost needs in achieving patient-centered care and quality patient outcomes is in the area of promoting effective communication with patients receiving mechanical ventilation. Imagine the challenge of conveying your fears about making treatment decisions if health care professionals are only asking yes/no questions? Other than the work of Dr Mary Beth Happ and colleagues at the University of Pittsburgh, precious little work is being done in this area. What are effective ways of improving communication and the quality of communication among patients making important care or treatment decisions or participating in end-of-life decisions and discussions?

The research priorities surrounding symptom management articulated by the National Institute of Nursing Research and the AACN also require attention. Although only a limited selection of complementary therapies are addressed in an article by Tracy and Chlan, there is great opportunity for research that tests these adjunctive interventions for their influence on common symptoms experienced by patients.

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**Table: Pulmonary/mechanical ventilation research priorities of national nursing organizations**

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<thead>
<tr>
<th>American Association of Critical-Care Nurses (AACN) research priorities (<a href="http://www.aacn.org">www.aacn.org</a>)</th>
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<tbody>
<tr>
<td>The current AACN research priorities are summarized into 5 broad priority areas to guide future research activities and initiatives.</td>
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<tr>
<td>• Effective and appropriate use of technology to achieve optimal patient assessment, management, and/or outcomes</td>
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<tr>
<td>• Creating a healing, humane environment</td>
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<tr>
<td>• Processes and systems that foster the optimal contribution of critical care nurses</td>
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<tr>
<td>• Effective approaches to symptom management</td>
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<td>• Prevention and management of complications</td>
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<tr>
<td>Acute/critical care processes</td>
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<tr>
<td>• Decrease risks for complications</td>
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<tr>
<td>• Test interventions to improve nurse-patient communication; best way to assist patients to use available communication devices</td>
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<tr>
<td>• Factors that facilitate survival and recovery in patients undergoing mechanical ventilation, including weaning from prolonged mechanical ventilation and discharging to home; potentially modifiable risk factors</td>
</tr>
<tr>
<td>• Test interventions to decrease the impact of persistent neuropsychological and functional deficits</td>
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<tr>
<th>National Institute of Nursing Research, National Institutes of Health (<a href="http://www.ninr.nih.gov">www.ninr.nih.gov</a>)</th>
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<tbody>
<tr>
<td>Symptom management</td>
</tr>
<tr>
<td>• Design strategies to improve management of symptoms over disease trajectories including the transition from acute to chronic illness and periods of long-term survivorship of formerly life-threatening illnesses</td>
</tr>
<tr>
<td>• Develop strategies for assessment and intervention to improve health-related quality of life in persons with chronic or life-threatening illnesses</td>
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receiving mechanical ventilation, including anxiety, agitation, and dyspnea, particularly during weaning trials.

Long-term ventilator-dependent patients need complementary/alternative treatments that enhance their quality of life while effectively managing their anxiety and dyspnea because pharmacological agents are rarely used in rehabilitation settings to manage these symptoms. Much work is needed in this area to establish the scientific underpinnings and the evidence base of these treatment techniques as well as dissemination via clinical practice guidelines in order to empower nurses to implement those safe and effective methods into their practice.

Other factors that might influence the paucity of new research in the area of mechanical ventilation include a lack of availability of funding, the rarity of nurses or nursing-led research teams dedicated to research careers with ventilator patients, and the sometimes daunting challenges of conducting research with ventilator patients. Staff nurses may shun the idea of conducting research on their respective units given that they may lack expertise or feel intimidated by this endeavor. However, Dr Mary Lou Sole, in an interview in AACN Bold Voices, reminds us that when research questions come from staff nurses, the nurses get involved and are “hooked.” Research becomes part of the unit’s culture when staff nurses become involved.12

Summary

We have proposed selected priority areas that need to be addressed through the conduct and dissemination of research by nurses at all levels and educational preparations to achieve quality care and improve outcomes for patients receiving mechanical ventilation. EBP champions on nursing units can obtain input from patients and their families about their views on ways to improve care or experiences for their loved one who is receiving mechanical ventilatory support or can receive input from former ventilator patients.

Nurse focus groups could be used to determine what knowledge and skills are needed to provide patient-centered care that is based on the best available evidence in a highly stressful and demanding setting. Creative ways to engage and reward nurses for participating in these clinically based research or EBP projects are warranted.

It is the responsibility of professional nursing to take the lead in advancing the research agenda and evidence base in the care of patients receiving mechanical ventilatory support. We challenge all nurses to incorporate the best available evidence into their practice, and to participate in and conduct quality clinical research to advance the practice knowledge base toward achieving the goals of improving patient care and quality outcomes.

References


Achieving Quality Patient-Ventilator Management: Advancing Evidence-Based Nursing Care
Linda Chlan, Mary F. Tracy and Irene Grossbach

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