Pain, Agitation, and Delirium Guidelines: Nurses’ Involvement in Development and Implementation

Judy E. Davidson, RN, DNP
Chris Winkelman, RN, PhD
Céline Gélinas, RN, PhD
Anna Dermenchyan, RN, BSN, CCRN-CSC

The 2013 American College of Critical Care Medicine/Society of Critical Care Medicine clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit serves as a living example of nurses’ involvement in the development and implementation of professional guidelines. Nurses who served on this guideline-writing panel describe their experiences. Specific examples from the pain, agitation, and delirium guidelines for care are used to explore the roles of the nurse leader, nurse informaticist, staff nurse, and nurse researcher in relationship to guideline implementation. (Critical Care Nurse. 2015;35[3]:17-32)

The development and implementation of professional guidelines affect nurses in many roles associated with critical care. The American College of Critical Care Medicine/Society of Critical Care Medicine (ACCM/SCCM) 2013 clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit (referred hereafter as the PAD guidelines) contain new recommendations proposing changes in the way care is delivered, challenging old paradigms and illuminating new unanswered questions that suggest the need for further research. This article explores the key responsibilities that nurses have in a variety of roles during generation and implementation of new practice guidelines by using concrete examples from the PAD guidelines. Involvement of a nurse appointed to the guideline-writing panel, a nurse leader, a nurse informaticist, a staff nurse, and a nurse researcher is reviewed. Examples are selected to highlight the changes from the PAD guidelines that have the greatest impact on nursing practice. The order in which topics are reviewed reflects the chronological order of change often seen in this cyclical process (see Figure).

CE Continuing Education

This article has been designated for CE credit. A closed-book, multiple-choice examination follows this article, which tests your knowledge of the following objectives:

1. Examine the role of nurses in a guideline-writing panel for pain, agitation, and delirium (PAD)
2. Explain leadership strategies needed to implement new PAD guideline practices
3. Summarize the actions of nursing roles in implementing practice changes related to new PAD guidelines

©2015 American Association of Critical-Care Nurses doi: http://dx.doi.org/10.4037/ccn2015824
Authors of this manuscript are SCCM members, and several were involved in the guideline-writing process and/or a national task force through the SCCM to create work tools for guideline implementation (http://www.sccm.org/Research/Quality/Pages/ICU-Liberation.aspx).

**Figure** Role-specific actions related to changes in practice guidelines.

Authors

Judy E. Davidson is evidence-based practice and research liaison at UCSD Health System, San Diego, California.

Chris Winkelman is an associate professor at Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, Ohio.

Céline Gélinas is an assistant professor at Ingram School of Nursing, McGill University and a nurse scientist at Jewish General Hospital, Montréal, Québec, Canada.

Anna Dermenchyan is a clinical quality specialist at UCLA Health, Los Angeles, California.

Corresponding author: Judy E. Davidson, RN, DNP, UCSD Health System, 200 W Arbor Drive, San Diego, CA 92103 (e-mail: jdavidson@ucsd.edu).

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care. Nurses benefit in many ways from associating with professional organizations related to their area of specialty practice.

The SCCM is an interdisciplinary organization that traditionally has comprised physicians, nurses, respiratory therapists, and pharmacists (www.sccm.org). Following development of the PAD guidelines, along with new recommendations for early mobility,1 the SCCM recognized that therapists specializing in critical care were essential partners in care, so a new section of SCCM has been established for therapists as well.

The leadership teams of the SCCM and the ACCM work together to elect members onto a guideline task force. The guideline task force establishes priorities and selects writing teams for the development of interprofessional practice guidelines. The SCCM/ACCM leadership team is diligent about constructing writing teams that represent all disciplines within the SCCM. Among 20 authors of the PAD guidelines, 5 were nurses, which is more than proportionate to the percentage of nurse members within the SCCM. It is not required to have a specific academic degree to participate in these activities. However, the guideline committee selected nurses with many of these experiences: active members of the SCCM, members who had served on SCCM committees in the past, had obtained fellowship through the ACCM, had a history of direct participation in developing work products to advance practice, had experience in guideline or other scholarly writing, had content expertise, or had conducted research in at least 1 of the PAD topics.
Role Expectations of the Nurse on the Guideline-Writing Panel

All members of the guideline-writing panel were treated with true collaborative respect and equality. Nurses did not serve as subordinates. All members had an equal voice in voting and revisions. All members of the writing panel were valued for their unique skill regardless of discipline, and learning was bidirectional. For instance, the panel included scientists with in-depth knowledge on a topic of interest, guideline and evidence analysis experts, and psychometric analysis experts. The evidence analysis skills that nurses learn in formal nursing education were of great benefit to the team.

All members worked within a strict framework for evidence analysis. The GRADE method served as the foundation for the creation of the document and provided a consistent, objective, transparent, and rigorous method to evaluate the literature with built-in checks and balances. The GRADE method allowed the writing team to use all types of research reports, not just randomized controlled trials (RCTs), in the review. This flexibility was especially important in areas where RCTs were not available or could not be performed for ethical reasons. At the beginning of the process, members were provided with training on how to use the GRADE method, and an expert was available at all times to review the work and ensure that the GRADE process was used correctly for each section of the guideline.

Before exploring the literature, the beginning of a guideline takes form by writing PICO questions. A PICO question is a research review question that defines the Population of interest, Intervention, Compared with what?, and Outcomes of interest. For instance, one PICO question within the document was “Should haloperidol or atypical antipsychotics be used prophylactically to prevent delirium in ICU [intensive care unit] patients?” Writing PICO questions is commonly taught in undergraduate nursing programs when students are learning about evidence-based practice, but this may not be the case for other disciplines. Nurses on the writing panel assisted others in becoming comfortable with the PICO writing process.

The PICO questions were selected on the basis of what the writing group thought were the most pressing issues on the topic to date. Writing a guideline from PICO questions does have a drawback. Only a select number of questions are asked. This limitation results in recommendations specific to only those questions. If the question was not asked, the process results in no recommendation for clinicians regarding other topics of interest. Questions will be left unanswered. For instance, a nurse may look through the document and wonder why there was no recommendation about bolus versus infusion administration of medications. This occurred because no PICO question was written in the beginning of the guideline development process to answer that practice question.

Another aspect of guideline writing that warrants explanation is the issue of using evidence versus consensus statements. This became an issue within the PAD guidelines related to the use of haloperidol. The answer to the PICO question regarding haloperidol in the guidelines could be frustrating for clinicians: “We do not suggest that either haloperidol or atypical antipsychotics be administered to prevent delirium in adult ICU patients” and “There is no published evidence that treatment with haloperidol reduces the duration of delirium in adult ICU patients.” The recommendation started with “We do not suggest” because evidence indicates that these drugs may cause harm due to QTc prolongation without evidence to support use.

It was difficult for the writing team not to write a haloperidol recommendation that used expert opinion in the absence of evidence because we knew clinicians would want guidance about treating delirium. In the past, guidelines were written by consensus statements, meaning that if experts agreed that a practice was helpful, or the most commonly held practice, they could write a recommendation for it, even without research evidence. However, the GRADE process discourages the use of expert opinion, and the SCCM had placed boundaries on the writing team to avoid the use of recommendations based on expert opinion. In the end, delirium preventive measures such as minimizing use of benzodiazepines, maintaining light levels of sedation, and early mobility replaced treatment recommendations because evidence was available to support preventive measures. Treatment with antipsychotics or any other drug did not have enough evidence of benefit, and therefore no recommendation could be made. Calling out the gap in the evidence by stating that no recommendation could be made was intentionally done to stimulate research in this area. The PAD guidelines were written.
purely by review of published evidence, which was a departure from the method used in previous versions of these guidelines.

The literature review was conducted with the expert advice of a research librarian, and all of the literature within each topic was gathered and reviewed. Members of the committee were assigned questions to answer, and at least 2 people reviewed each manuscript reviewed to answer the PICO question to prevent interpretation bias and the influence of intellectual bias. Often a nurse was paired with a physician or pharmacist, but they conducted the review in the same way, using the same structured but independent evidence summary table, and then compared notes at the end. Where there were differences in analysis, each person presented their point of view and rationale, which often resulted in consensus. This portion of the process required skills similar to those used in debate or conflict resolution. Only evidence, and not emotion, was used to carry a proposal for a recommendation forward.

The creation of evidence summary tables is common practice in advanced nursing education and is very helpful in guideline writing. The guideline-writing panel was divided into small writing teams based on these topics: pain, agitation, delirium, and outcomes. Later another team was formed to conduct the psychometric analysis of all of the assessment tools for pain, agitation/sedation, and delirium. Nurses led both the pain writing team and the task force that conducted the psychometric analysis of assessment tools given nurses’ particular recognized expertise in these subjects. The team leaders required skills in delegation, conflict resolution, and project management. They received higher level of authorship because of the extra work involved in leading the teams.

This guideline panel was specifically designed to include and benefit from the expertise of the scientists. The evidence review teams were constructed proactively to reduce the likelihood of intellectual bias. This meant that members of the guideline-writing team sometimes had to advocate when published results were inconsistent, even though other members of the writing team may have been involved in the original research. Leadership and communication skills were essential to maintain the integrity of the document and navigate through the tensions that stem naturally from finding that once-held truths have not been consistently replicated over time. One PAD-related example of this occurred with daily sedation interruption. It might be noted that daily sedation interruption, which was originally strongly recommended, is now tempered as a recommendation and rewritten as “We recommend either daily sedation interruption or a light target level of sedation be routinely used in mechanically ventilated adult ICU patients.” This tempering occurred because, since the last version of the guideline was published in 2002, several newer studies have had conflicting results. In studies that did not demonstrate improved outcomes with daily interruption of sedation, the research protocols had called for a lighter level of patient sedation. Daily interruption of sedation in these lightly sedated patients did not have the same effect as reported in studies evaluating daily sedation interruption in more deeply sedated patients. Upon further exploration, it was noted that another variable that might have driven a different result was that the newer studies were conducted in Australia, where 1 to 1 nursing and sedation protocols were common, which may have also diluted the effect of the intervention. This did not, however, negate the fact that daily sedation interruption has been found to be helpful for patients who are sedated to a deeper state or where no sedation protocol had been used, and therefore the practice remained in the recommendation.

The nurse on the writing panel needed to consider throughout the entire process, “Are the most important topics to a nurse being addressed?” “Can a nurse actually carry out these recommendations?” and “Is there anything else a nurse would need to know to make this work?” It is in this area that the nurse also provides advice about the development of work tools to measure success during guideline implementation. Following publication of the guideline, which is limited by size and space, nurse authors continued to present publicly and write additional manuscripts to provide lessons learned and more detail into how to interpret and implement the practice guidelines in real-life settings.

Psychometric Analysis During Guideline Writing

This section details the work behind analysis of the psychometric testing of the tools because it was another
unique departure from the method used in generating past guidelines on this topic and also because the work was led by a nurse. For the first time, a critical analysis was conducted of the psychometric properties (ie, validity and reliability) of the pain, agitation/sedation, and delirium tools specific to use with critically ill adults.

Validity refers to the conclusions that can be drawn from the tool’s scores (eg, Does a particular score on a behavioral pain scale actually indicate that a patient is having pain or not?). Reliability refers to the overall reproducibility of a tool’s scores over time (ie, test-retest reliability) or between raters (ie, interrater reliability). Validity and reliability are not properties of tools per se but rather are related to their use. Therefore, an assessment tool can only be shown to be reliable and valid when used for a specific purpose in a specified group of individuals and in a given context. Considering this, it would not be appropriate to use a pain scale initially developed for critically ill infants with ICU adults unless it use has shown good psychometric properties with ICU adults as well.

This initiative of the SCCM task force was a relevant addition to the guideline-writing process and can be used as a guide for nurses within the interdisciplinary team in the selection of assessment tools for ICU practice. Selecting appropriate assessment tools for clinical use is no simple matter, as it can have significant effects on patients’ evaluation and treatment and requires essential basic knowledge in tool development and psychometric testing.

Briefly, 3 psychometric scoring systems were developed for each domain (ie, pain, sedation, and delirium). In fact, validation strategies do not apply to all assessment tools, and the relevant ones must be captured in relation to the purpose of the tool’s uses. For instance, behavioral pain scales are meant to detect when pain is present (or absent) rather than to determine pain intensity (ie, mild, moderate, severe). Sedation scales are mainly used to titrate medication to a specific goal of sedation, and delirium tools are used to detect if delirium is likely to be present or not.1 Also, gold standards exist in the fields of pain (ie, patient’s self-report of pain). Debate continues about whether medical diagnosis by a psychiatrist or certified physician can be used in the ICU for delirium. There is no gold standard for assessing agitation/sedation. Therefore, strategies employed for tool development, feasibility, ease of use, and clinical relevance and impact of implementation into practice also were evaluated. The 3 psychometric scoring systems underwent rigorous content validation by 3 international experts in health measurement, including 2 nurses. Appropriate changes were made in response to their comments. A weighted scoring system from 0 to 20 that was inspired by a psychometric scoring system for pain scales previously developed by Zwakhalen et al was established to facilitate the interpretation of results of assessment tools for all 3 domains. Assessment tools with good to very good psychometric properties (weighted score ≥ 12) were considered to be the most valid and reliable scales/tools for use in critically ill adult patients.1

A total of 6 behavioral pain scales, 10 sedation scales, and 5 delirium-detection tools and their related studies were analyzed independently by 2 reviewers from a panel subgroup involving 3 nurses. Reviewers directly involved in the development of an assessment tool did not take part in the analysis of those tools. Scores from 0 to 20 were attributed to each tool according to the highest quality of evidence and were based on a consensus between the reviewers. The quality of evidence for each assessment tool was also evaluated by using categories similar to those used in the GRADE method, with modifications adapted for the psychometric analyses.

Psychometric properties are not static properties of a particular assessment tool and can evolve as more evidence is generated and published. Recent reviews of behavioral pain scales and sedation scales were published after the PAD guidelines, which covered English manuscripts until 2010. In the pain scale review, 10 new studies including 2 other behavioral pain scales were analyzed: the Face, Legs, Activity, Cry, and Consolability (FLACC) scale (initially developed for children with cognitive impairment) and the Nonverbal Pain Assessment Tool. According to scores obtained with the psychometric scoring system, the Behavioral Pain Scale and the Critical-Care Pain Observation Tool remained the most valid and reliable for detecting pain in ICU adults, according to the available evidence so far. Similarly, in the sedation scale review, 9 new studies, including a new scale, the Nursing Instrument for the Communication of Sedation, were analyzed. In this

The author should be contacted for permission to use published tools.
review, the Nursing Instrument for the Communication of Sedation was considered as another option for the evaluation of sedation with a weighted score greater than 12, and the psychometric scores of 5 scales addressed in the PAD guidelines increased. Of these 5 scales, the Ramsay Sedation Scale\textsuperscript{34,35} obtained a score much higher than the score reported in the PAD guidelines (13.1 vs 7.7), and the Richmond Agitation Sedation Scale\textsuperscript{36} as well as the Sedation Agitation Scale\textsuperscript{37} obtained the highest scores. These are good examples illustrating that as few as 2 to 3 years can make a difference and that being up-to-date with literature review is important when considering assessment tools for clinical use.

**Nurse Leader**

Once a new national guideline is written and published, a variety of nurse leaders are involved in translating the new recommendations into practice and eliminating outdated practices. These nurse leaders may be charge nurses, supervisors, managers, directors, clinical nurse specialists, nurse practitioners, educators, or staff nurses serving as project leaders. This section reviews the work needed to implement the guidelines from a leadership perspective.

**Selection of Assessment Tools**

The guidelines allow a choice between 2 of the top-rated tools for pain, agitation, and delirium; thus, the organization still needs to determine which tool it will use. As mentioned, tools have been evaluated since the publication of the PAD guidelines and may also be appropriate at the local level. The selection of assessment tools for clinical use in a specific organization should be made within an interprofessional committee on which nurses (eg, nurse informaticist, nurse manager, clinical nurse specialist, nurse practitioner, nurse educator, staff nurse) are represented. The involvement of nurses is essential and desired, considering their primary role in assessment of patients. Decisions for selecting an assessment scale or tool should be based on the following elements\textsuperscript{38}:

1. Evidence of validity and reliability of its use with a similar patient population and context in which it is planned to be used;
2. Feasibility of use (eg, simple to understand, easy and quick to use);
3. Accessibility to directives of use and educational material;
4. Evidence of clinical relevance, for instance, effects of the tool’s implementation on ICU practices and patients’ outcomes is a plus value;
5. Author’s permission, copyright or license to use fees (if applicable).

In the case of the PAD guidelines, if the recommended tools are selected and used as published, no further permission is indicated. However, if the organization were to decide to use a tool in a way that was not intended, a discussion with the author is indicated. If the recommended tools are selected for clinical use (not for commercial use or publication) and are used as published, no further permission is usually indicated. This issue is complex and as a general principle, if the rules for use are not explicitly stated, the author should be contacted for permission to use the tool. The appropriate publication where the tool was first described should be cited. For instance, the American Association for Critical-Care Nurses (AACN) holds the copyright for the English version of the Critical-Care Pain Observation Tool. When used clinically, it should be referenced as follows: “Gélinas C, Fillion L, Puntillo KA, Viens C, Fortier M. Validation of the Critical-Care Pain Observation Tool in adult patients. *Am J Crit Care.* 2006;15(4):420-427. http://ajcc.aacnjournals.org/content/15/4/420.short.” When used for commercial purposes or publication, permission for use is obtained from AACN (M. Muscat, personal communication, April 28, 2014). Tools not readily available online often require permission for use.

In some cases, a subpopulation of patients may not be adequately served by the responses found on a tool, and special considerations are needed. Once a decision is made for the specific tool, it is important to ask the journal's or author’s permission (whoever holds the copyright or license) to use the tool. Any relevant questions pertaining to its use or use with a subpopulation of patients for whom special considerations are needed should be addressed to the tool’s author. For instance, brain-injured ICU patients with altered levels of consciousness seem to display atypical pain behaviors that are not captured in existing behavioral pain scales.\textsuperscript{39-41} Specific instructions can be made by the tool’s author to guide nurses in application of the tool until a version of the tool adapted for these vulnerable patients is available.\textsuperscript{22}

Training for appropriate use of the assessment tool in the ICU should not be overlooked and must
be planned carefully. It is helpful to contact the tool’s author to request relevant educational material (e.g., handouts, standardized training video) that may be available. Short training sessions from 20 to 60 minutes for the use of pain, sedation, and delirium scales with support tools such as posters, pocket cards, and videos have proven effective. Further information about the tools advocated within the PAD guidelines may be found online through the SCCM website Liberation initiative (http://www.sccm.org/Research/Quality/Pages/ICU-Liberation.aspx). Change champions who receive extra training and become specialists in this area of practice also are helpful during the implementation process to provide feedback and solve immediate problems. Implementation of pain, agitation/sedation, and delirium assessment tools has resulted in improved use of medication and improved patient outcomes such as shorter ICU stays and reduced mortality. These results may be related to the earlier identification and treatment of pain, agitation/sedation, and delirium.

**Specific Leadership Activities: Mobility Examples**

This section on mobility is reviewed in detail because it represents a significant change in the philosophy of how care is provided to critically ill patients and has a proportionately larger impact on the nursing staff than do other changes within the PAD guidelines. Immobility and bed rest have long been recognized as a cause of serious complications from critical illness, including pressure ulcer formation, thrombotic events, contractures, and skeletal muscle weakness and wasting. Yet sustained periods of bed rest resulting in immobility remain a widespread clinical practice in ICUs, particularly for patients receiving mechanical ventilation.

In the new PAD guidelines, early mobilization of adult ICU patients is recommended to reduce the incidence and duration of delirium with a rating of +1B. This rating translates as a positive, strong recommendation (+1) based on moderate quality of evidence (grade B). Two reports form the basis of the recommendation. In the first study, 104 ICU patients admitted to 2 different medical centers and who had functional independence before admission were randomized to receive physical and occupational therapy versus usual care during their spontaneous awakening trial within the first 72 hours of mechanical ventilation. Patients who experienced early mobilization had a reduction in the duration of delirium by 2 days; had 2 more ventilator-free days; and stood, walked, or transferred on their own 3 days earlier than did patients who did not receive the intervention. A second report described a quality improvement project at a single center that included 57 consecutive medical ICU patients who were cognitively intact, without neuromuscular disease before admission to the unit, and required mechanical ventilation for 4 days or longer. An early mobility intervention led by a physical therapist had resulted in increased alertness, decreased delirium, and an ICU length of stay reduced by 2.1 days compared with historical data. Both reports used an intervention led by a physical therapist.

The nurse leader within each ICU must develop his or her own approach to getting ICU patients moving. Several common themes must be addressed when establishing a program of patient mobilization in the ICU (see Table). Although no published ICU-specific report details a single treatment plan for reducing immobility, several published protocols describe how to evaluate patients for readiness for and progression of mobility. Many protocols and several reports use a dedicated rehabilitation team that consists of a unit-based full- or part-time physical therapist. The team leader should consider a quality improvement approach such as a comprehensive unit-based safety program (www.ahrq.gov/professionals/quality-patient-safety/cusp/index.html) or the plan, do, check, act cycle. Identifying potential barriers early and developing specific strategies to overcome those obstacles can assist in making a significant practice change. Leaders need to plan for a long lead time and incremental changes before realizing a successful change. Most reports about starting a new mobilization program in the ICU have described phases of team engagement and implementation that occur over 2 to 3 years. Generally, when caring for critically ill patients, each discipline has their prescribed roles and duties (e.g., prescription vs dispensing vs administration of medications). However, mobilizing the critically ill patient is not one person’s job because, unlike administering medications, mobilizing patients can rarely be performed alone. It becomes the work of the entire team. Not only does the nurse need to shift mentality from condoning prolonged bed rest during critical illness to encouraging mobility, but also from doing work as
a nurse to coordinating work of the team. The leader can expect the development of a team mindset to be an investment of time and energy, yet this process is essential for program success. To develop a team approach to mobility, the first step is making sure that the team is complete. In many ICUs, the first step will be to negotiate with leaders in rehabilitation services to obtain physical and occupational therapy support for critically ill patients. This adjustment may change work flow and staffing in their department. Realistically, if rehabilitation therapists are not already providing routine services in the ICU, the added support may require a full budget cycle to plan, train, budget, and implement. Evidence supports that early and progressive mobilization, particularly among patients with prolonged mechanical ventilation, is safe and feasible. A meta-analysis and 2 systematic reviews report that an early, progressive mobility intervention results in reduced length of stay in the ICU and hospital, more frequent discharge to home (rather than long-term care facilities), fewer readmissions to the ICU, and decreased duration of mechanical ventilation. Additional research is needed regarding dose of early progressive mobility. Dose refers to how often or how long mobility is needed daily to produce results. Data supporting specific strategies or interventions to promote mobility in ICU settings and identifying activities that have the greatest benefit to patients are needed. Strategies include steps taken to implement cultural, environmental, and team-based changes that result in increased mobility in eligible patients. It is not known whether placing the bed in a chair position has the same benefits for patients as passive transfer to a chair, dangling or sitting at the edge of the bed, or weight-bearing pivot transfer to a bedside chair. Targeted research will help with clinical decisions about how to start and progress mobility.

Early progressive mobility is endorsed by the PAD guidelines as an intervention to reduce delirium. Patients need to have periods of light or no sedation in order to participate in this effective intervention. Decreasing immobility in the ICU does not occur in isolation from other ICU treatments. A treatment plan to reduce immobility is intertwined with management to reduce pain, agitation, and delirium in our critically ill adults.

Measuring the Impact of Change

The nurse leader measures the success of the change through selected quality metrics. Sample strategies

<table>
<thead>
<tr>
<th>Considerations in establishing and maintaining a patient mobilization intervention in the intensive care unit (ICU)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Create and sustain a culture that promotes patients being awake at least part of each day</strong></td>
</tr>
<tr>
<td><strong>Establish a multidisciplinary team with a shared vision and common goals</strong></td>
</tr>
<tr>
<td>• Recruit team members: intensivist/ICU director, respiratory therapist, physical therapist, bedside nurse(s), unit manager, hospital or ICU administrator</td>
</tr>
<tr>
<td>• Identify the team members who will deliver the intervention or therapy</td>
</tr>
<tr>
<td>• Provide training and education to manage challenges of physiological instability, catheter and tube continuity, oversedation, delirium, and other barriers to implementing mobilization</td>
</tr>
<tr>
<td><strong>Develop a process for identifying eligible patients</strong></td>
</tr>
<tr>
<td>• Develop a strategy for daily communication to identify patients for mobilization therapy and coordinate activity (eg, checklist, champion, order set)</td>
</tr>
<tr>
<td><strong>Acquire specific equipment and devices to ensure safe and efficient mobilization</strong></td>
</tr>
<tr>
<td>• Portable cardiac monitor and pulse oximeter</td>
</tr>
<tr>
<td>• Intravenous poles, walkers, and wheelchair</td>
</tr>
<tr>
<td>• Ventilator with battery pack, portable ventilator, and bag-valve-mask with supplemental oxygen carrier</td>
</tr>
<tr>
<td><strong>Coordinate with the nurse educator to provide training and education to manage challenges of physiological instability, catheter and tubes, agitation/pain/delirium</strong></td>
</tr>
<tr>
<td><strong>Use a formal audit and systematic feedback to identify and resolve barriers, celebrate successes, and determine the impact of a mobilization program</strong></td>
</tr>
<tr>
<td>• Survey the people who deliver the care to determine resources in advance of starting and after implementation of daily mobility</td>
</tr>
<tr>
<td>• Examine common quality indicators such as duration of mechanical ventilation, length of stay in ICU and hospital, direct costs (eg, dedicated staff), changes in number of admissions (as a result of shorter stay), and days of no delirium or cognitive intactness.</td>
</tr>
</tbody>
</table>

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*Based on information from Hopkins and Spuhler, Korupolu et al, and Lord et al.*
Many times the obstacle to achieving the goal is related to available equipment or labor resources, which the leader needs to address personally.

The nurse leader can effect change by making frequent rounds, being consistent with the message, and giving timely feedback to staff to ensure implementation of the guideline. During rounds, coaching and feedback can be used to educate staff one on one. Providing this education at the point of care is a key step that can help the bedside practitioner embrace the change and help spread the message.

One approach to support practice change is for the nurse leader to make rounds daily during the first 2 weeks and then twice a week for the next 2 weeks. Then, as time goes on and the practice changes are solidified, the frequency can be reduced to weekly. The length of time needed to monitor the process will depend on whether changes are made all at once or incrementally. The more practices that require a change, the longer focused attention on the process will be needed.

Nurse Informaticist: Maintaining Psychometric Integrity of Assessment Tools

The nurse informaticist uses clinical knowledge to create the documentation in the electronic medical record (EMR) to match the thought process and workflow of clinicians who use the system while ensuring that essential elements required by regulatory and professional standards can be easily recorded within the EMR. The nurse informaticist is an important link to successful implementation of the guideline. For example, within the PAD guidelines, a choice of 2 different assessment tools are recommended for each: pain, sedation/agitation, and delirium. The organization may need to change or add assessment tools in the EMR to meet the new recommendations. Translating these tools properly into a usable form for the EMR is essential for optimal adherence to the protocol. If there is no place to document the assessments, or an outdated tool exists in the EMR, the recommendations within the guideline have less chance of being followed.

Earlier we described the rigorous analysis process that was used to ensure that the selected tools were valid and reliable. This work could be negated if the tools were shortened, abridged, or altered in any way to “fit” into the EMR. Altering them could decrease reliability and validity further. If the electronic system has character limits that prevent use of the intact tool, the intact tool needs to be easily available as a reference. No independent “tweaking” of the tool should occur because this would invalidate the psychometric properties related to the tool use and could result in false-positives or false-negatives, which could possibly affect patients’ treatment and outcomes. Last, because psychometric properties evolve as more research is published about the use of the tool, the EMR must be nimble and responsive enough to adapt to updates on the tool over time. Someone on the change team needs to be assigned to monitor the current status of official published tool revisions so that the nurse informaticist can be informed of the need to update as indicated.

The nurse informaticist may support the guideline implementation process by reviewing order sets to determine where EMR prompts and decision support may be designed to drive protocol adherence. The order sets may also be built with embedded sedation or analgesia targets. The nurse informaticist also supports the quality monitoring process by designing EMR prompts that can capture key quality metrics. As a result, queries through the EMR can be created to streamline the work of data collection, report synthesis, and analysis of outcomes. For example, queries could be set up to answer the questions: What percentage of hours per day are patients undergoing mechanical ventilation maintained at the goal sedation target? Is there a relationship between maintaining the sedation target and achieving mobility goals? Partnering with the nurse informaticist early in the change process to develop real-time reports can alert change teams to problematic areas of protocol adherence so that action plans can be redefined and problematic areas can be reinforced on rounds.
Staff Nurse as Change Leader

It is possible that the staff nurses have heard about the new recommendations and realize the need for change before the leadership team does. Staff nurses may have heard about the recommendations at a lecture or conference or they may have read the guidelines or an article such as this one that increased their awareness of the updated evidence related to pain, agitation, and delirium. Staff nurses who are active in self-governance councils are often the leaders to promote change. If not already done, the staff nurse serving as a change agent can conduct an initial assessment by performing a gap analysis.\(^1\) The gap analysis is an audit or survey that identifies the gaps between recommended and current practice and identifies varied practices that might exist. If the guideline recommendations are not in practice, then the staff nurse can meet with operational nurse leaders, the medical director, and unit practice council members to present the evidence and obtain organizational support for change. Even in the most autonomous of nursing practices, because resource issues are involved in making the changes recommended within the PAD guidelines, it is important to have endorsement of operational leaders from the beginning of the project so that the necessary resources and support to sustain the practice change can be obtained.\(^1\) An example of this situation would be the need to work across disciplines to increase physical therapy time in the unit to support mobility goals.

Skepticism or resistance to change may exist because, as new research is published, what was once advocated as best practice may become outdated. All those involved may have been through the complete cycle of bringing in a new practice only to find a year later that the practice is not effective or actually harmful (eg, tight glycemic control). Those in practice longer may have incurred repeated experiences like these over time. This situation is unavoidable, yet it highlights why it is important to understand the guideline-writing system. Evidence is scored from high to very low on a scale that uses strict criteria. Guideline-writing panels may produce recommendations to change practice even without high levels of evidence if the benefit of the intervention is thought to outweigh the risk or cost and the intervention is something most patients would want. If the recommendation starts with “we recommend,” it was written from stronger evidence than one that starts with “we suggest.”

When choosing which changes to make in the workplace, looking at the strength of the evidence and the wording can help the team to decide priorities for change.\(^1\) Those involved in proposing the change also must consider the cost, values, and feasibility when selecting recommendations for change within the local health care setting.

In the case where operational nurse leaders propose a practice change, it is helpful for clinical staff to volunteer to become change champions. These champions must study the new recommendations to be in the best position to help effect the change. Often staff nurses bring credibility to the change team because of their role in validating that proposed changes are feasible at the bedside, and as such, they serve as opinion leaders. The endorsement of change from a practicing staff nurse can be very effective in changing behaviors of those reticent or skeptical of change.\(^1,6\) Staff nurses are the direct advocates for patients, as they have the more face-to-face time with patients and patients’ families. Coaching and performance feedback is best achieved when provided in real time in responses to actual cases. In the early process of practice change, the staff nurse is in the position to identify successes from actual cases that can be advertised through word of mouth, huddles, and case review to solidify commitment to the recommended change.\(^7\) Because of the volume of time spent at the bedside, trusted staff nurse opinion leaders may actually have more opportunities than operational nurse leaders to redirect others to achieve protocol adherence.

Staff Nurse as Recipient of Planned Change

Clinical practice guidelines that are published do not automatically improve patients’ outcomes. Staff engagement in the process produces a greater likelihood of effective improvement in patients’ outcomes.\(^1,6\) The new guidelines contain 32 practice recommendations and suggestions and 22 statements in the areas of pain, agitation/sedation, and delirium. It is unlikely that all of these practices are currently in place in any given unit; therefore, change can be anticipated. The likelihood that these recommendations will be translated into practice increases if nurses who provide direct patient care accept the change and hold each other accountable for sustaining practice change.\(^7\)

One example of expected change that will directly affect staff nurses while providing care revolves around the pain assessment. Specifically, the PAD guidelines
recommend that pain be assessed routinely in all ICU patients. The target gold standard is patient self-assessment, as nurses and family members are poor surrogate assessors of pain. The guidelines no longer recommend using vital signs as a marker of pain. Many nurses have been taught for years to use vital signs as evidence of pain, and uprooting this outdated practice can be an expected change. Further, for patients with intact motor function who are unable to self-report, the Behavioral Pain Scale and the Critical-Care Pain Observation Tool are proposed within the guidelines as the most valid and reliable behavioral pain scales for monitoring pain in adult patients in medical, surgical, or trauma ICUs. Assessing pain every hour or when needed reduces use of sedation, as well as reducing days of mechanical ventilation and ICU days. The staff nurse should evaluate whether the pain assessment tools currently in use include the Behavioral Pain Scale or Critical-Care Pain Observation Tool. If not, then a practice change is indicated and should be brought to the attention of the leadership team. If the culture has been to use vital signs as part of the pain assessment in lieu of a validated assessment tool, this practice too should be challenged.

To understand what will be most helpful to control the pain and support the patient’s full recovery, it is important to find out about the patient’s experience with pain and the use of pain medications. For example, in many organizations, practices related to use of pain medication before chest tube removal vary. The guidelines recommend that preemptive analgesia and/or nonpharmacological intervention such as relaxation techniques should be administered before chest tube removal. The nurse can take initiative to find out about the patient’s preference and then make sure that pain medication is available before the chest tube is removed.

The PAD guidelines recommend that dosages of sedative medications be titrated to maintain a light rather than a deep level of sedation, unless clinically contraindicated. Light sedation is defined by the patient still being able to respond purposefully to commands. The example included in the guidelines specifically states that the patient should be able to do 3 of the following: wiggle toes, stick out tongue, open eyes, maintain eye contact, and squeeze hand. Maintaining light levels of sedation is associated with improved clinical outcomes for patients and thus shorter stays in the ICU. Therefore, the nurse needs to communicate any problems achieving the lighter sedation goal to the treatment team, since the nurse is primarily responsible for sedation delivery and dose titration. The recommendation to maintain light levels of sedation will most likely be one of the hardest to adhere to because of the extra work imposed when caring for patients who are awake. It will be the nurses at the bedside who can hold each other accountable during handoffs (shift breaks and change of shift) for maintaining the patients in an awake and calm state by minimizing use of sedatives. Inability to keep the patient both awake and calm may be due to insufficient pain management. The PAD guidelines recommend analgosedation (treating pain first) to prevent this problem. Further, if the goal of a light level of sedation is not ordered, the nurse will need to serve as the patient’s advocate. In the early phase of practice change, nurses may have to advocate obtaining the appropriate orders because physician colleagues may not be aware of the recommended changes in practice. The time period surrounding implementation of new guidelines tests the advocacy skills of nurses.

Another factor to consider for critically ill patients is the high risk for delirium, which is associated with increased mortality and prolonged ICU stay. The PAD guidelines recommend routine monitoring with use of the Confusion Assessment Method for the ICU or the Intensive Care Delirium Screening Checklist. So far, these tools have shown the strongest evidence of reliability and validity for detecting delirium in adult ICU patients. If the delirium assessment tools are not being used in the practice setting, then the nurse has the opportunity to advocate for such a change. Delirium assessment is less likely to be confounded by the cognitive and behavioral manifestations of sedation when the patient is maintained at a light level of sedation. Whereas some ICUs may have to add or change an assessment tool, the major changes within these guidelines relate to level of sedation and early mobility, both of which are a dramatic departure from previous practice standards. Practicing nurses can expect to do more physical activities with patients and find ways to keep...
patients who are awake occupied and safe. It would be common practice to include an evaluation of sedation level on interdisciplinary rounds. The patient, with very few exceptions, will be expected to be awake and able to participate in care, not just nod in response to questions. It has been suggested that embracing the presence of patients’ family members will distribute some of this burden from the nurse. Nurses may actively encourage patients’ family members to help with distraction, range-of-motion exercises, and cognitive activities; to coach mobility efforts; and to report evidence of pain, agitation, and delirium.19-20

Nurse Researcher: The Need for Future Research

When reading the PAD guidelines, it is clear where evidence is missing in this area of practice, signifying the need for further research. Take, for example, the section on nonpharmacological management of pain. The finding that almost no research on nonpharmacological methods to reduce pain has been done led guideline panelists to make no recommendations in this area except to medicate patients before chest tube removal. Furthermore, ample information has been published about the fact that ICU patients do not get enough sleep or enough quality sleep. However, no new studies related to interventions to improve sleep for critically ill patients have been published in the past 10 years. Two small studies78,77 were published regarding sleep and ventilator management, but no recommendation could be made on the basis of the results because the sample sizes were too small for confidence in the outcomes. Interventions to improve sleep and the relationship between mode of mechanical ventilation and sleep are fertile areas for future research.

Evidence also was insufficient to support a recommendation for the use of haloperidol. This, too, presents an area of needed study. The impact of delirium assessment on changes in treatment plan and outcomes has not been thoroughly studied, nor has the specific relationship between delirium and mortality. Finally, it is not known whether increased participation of patients’ family members at the bedside would help to improve protocol compliance with the PAD guidelines recommendations. All of these concepts lend themselves to interdisciplinary research inclusive of colleagues from respiratory therapy, pharmacy, physical therapy, and medicine. A list of research questions arising from the PAD guideline has been published.20

Conclusion

Nurses who are active in professional organizations have the opportunity to participate in the development of practice guidelines. This process requires leadership, communication skills, evidence analysis skills, and content expertise. Nurse leaders are expected to organize and execute change efforts while supporting the change efforts of clinical staff nurses who are change champions. Leaders also measure and communicate the impact of change, remove obstacles that prevent protocol adherence, and optimize facilitators of protocol adherence. Nurse informaticists have a role in converting the approved assessment tools into an electronic format without disrupting the validity and reliability of the proposed assessment tools. The staff nurse engages in changing front-line practice while encouraging peers to sustain a change in practice. Clinical staff may also provide input to nurse leaders regarding the obstacles or successes encountered with practice change or resources needed to optimize new goals such as early mobility and light levels of sedation. Nurse researchers develop new studies to address the gaps in knowledge and questions left unanswered within the guidelines. The nurses who served on the guideline-writing panel continue to serve as content experts available to support organizations with practice change. In summary, using the living example of the PAD guidelines, we have described how guideline development and implementation provide opportunities for nurses in a variety of roles to advance nursing practice. CCN

Financial Disclosures
None reported.

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