

Cognitive Stimulation in an Intensive Care Unit: A Qualitative Evaluation of Barriers to and Facilitators of Implementation

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BACKGROUND Delirium in the intensive care unit is associated with poor patient outcomes. Recent studies support nonpharmacological therapy, including cognitive stimulation, to address delirium. Understanding barriers to cognitive stimulation implemented by nurses during clinical care is essential to translating evidence into practice.

OBJECTIVE To use qualitative methods through a structured quality improvement project to understand nurses' perceived barriers to implementing a cognitive stimulation intervention in a medical intensive care unit.

METHODS Data were collected through semistructured interviews with nurses in a medical intensive care unit. Data were categorized into themes by using thematic analysis and the Consolidated Framework for Implementation Research. During cognitive stimulation, nurses reviewed with patients a workbook of evidence-based tasks (focused on math, alertness, motor skills, visual perception, memory, problem-solving, and language).

RESULTS The 23 nurses identified 62 barriers to and 26 facilitators of cognitive stimulation. These data were summarized into 12 barrier and 9 facilitator themes corresponding to the following Consolidated Framework for Implementation Research domains: Intervention Characteristics, Outer Setting, Inner Setting, and Characteristics of Individuals. Nurses also identified several facilitators within the Process domain. Patient-specific variables, including sedation, were the most frequently reported barriers. Other barriers included cognitive stimulation not being prioritized, nursing staff-related issues, documentation burden, and a lack of understanding of, or appreciation for, the evidence supporting cognitive stimulation.

CONCLUSIONS Implementation of cognitive stimulation requires a multidisciplinary approach to address perceived barriers arising from the organization, context, and individuals associated with the intervention, as well as the intervention itself. (*Critical Care Nurse*. 2021;41[2]:51-61)

Delirium occurs in up to 80% of patients receiving mechanical ventilation and in up to 50% of patients not receiving mechanical ventilation during their stay in an intensive care unit (ICU).¹

In these patients, delirium is associated with worse outcomes, including a longer duration of mechanical ventilation and a longer stay,²⁻⁶ and more cognitive impairment 1 year after discharge.^{7,8} Hence prevention and treatment of delirium are important to improve outcomes for critically ill patients. Delirium also is associated with a heavier workload for nurses,⁹ as nurses play an essential role in recognizing and managing delirium in the ICU.¹⁰

Several recent studies have shown no benefit of pharmacological therapy in preventing or treating delirium in critically ill patients.¹¹⁻¹³ The Clinical Practice Guidelines

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for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU, from the Society of Critical Care Medicine, do not support the routine use of antipsychotic drugs to manage delirium in patients in the ICU.¹⁴ The guidelines do, however, support multicomponent, nonpharmacological interventions such as cognitive stimulation to manage delirium.

In a pilot randomized controlled trial (RCT) including 140 patients not receiving mechanical ventilation in an ICU, Álvarez et al¹⁵ demonstrated that a multicomponent intervention, when applied early, reduced both the incidence of delirium (from 20% to 3%; $P < .001$) and the proportion of study days on which patients experienced delirium (from 8% to 1%). That intervention included 2 sessions per day, each 40 minutes long, during which the occupational therapists conducted cognitive stimulation through the use of a notebook; the tasks aimed to activate patients' mental functions (eg, alertness, problem-solving).¹³ Meta-analyses have demonstrated that similar multicomponent nonpharmacological interventions for delirium, including those implemented by nurses, are associated with a lower incidence of delirium among both general medical-surgical patients and critically ill patients.^{16,17} In other systematic reviews, investigators have advocated for additional research into promising interventions.^{18,19} Inspired by these studies, we commenced a structured quality improvement (QI) project to introduce cognitive stimulation, performed by nurses, in the medical ICU (MICU) at Johns Hopkins Hospital. An understanding of barriers to implementation is an essential component of translating evidence into practice.²⁰ Therefore, through this project we used qualitative methods to evaluate potential barriers to and facilitators of implementation of a cognitive stimulation intervention in an academic MICU in the United States.

Methods

QI Project and Planning

Starting in September 2017, a QI project was undertaken to implement combined cognitive stimulation and early, goal-directed mobility, both performed by nurses, in the MICU at Johns Hopkins Hospital. Notably, this MICU had already incorporated into routine care, on the basis of existing evidence, many aspects of the aforementioned multicomponent nonpharmacological interventions, including early physical and occupational therapy,

a sedation protocol, and reorientation. As newer evidence emerged,^{14,15,21} the QI team decided to introduce brief cognitive stimulation activities that would be delivered by nurses. We began planning and preparing for this ongoing QI project in November 2016; our first step was to establish a multidisciplinary team comprising nurses, advanced practice providers, physicians, clinical technicians, physical and occupational therapists, and respiratory therapists. The Johns Hopkins University Institutional Review Board reviewed the project and designated it as a QI project, granting a waiver of consent.

To perform cognitive stimulation, at least once per shift nurses reviewed with patients (those who had a Richmond Agitation-Sedation Scale score ranging from -2 to +2) a workbook of evidence-based tasks focused on math, alertness, motor skills, visual perception, memory, problem-solving, and language¹⁵; each task was categorized as either easy, medium, or hard. The workbook was part of an intervention used in a prior RCT from South America that demonstrated a lower incidence and duration of delirium among critically ill patients after the intervention was administered.¹⁵ Nurses chose 1 page of tasks from the workbook to review with each patient once per shift. Reviewing the tasks with each patient typically required less than 2 minutes to complete. Although in the earlier RCT occupational therapists implemented cognitive stimulation,¹⁵ the multidisciplinary team running this QI project agreed that nurses would implement cognitive stimulation, given that this intervention, which was intended to be administered twice each day (once during the day shift and once during the night shift) to all eligible patients in the MICU, could only be feasibly delivered by nurses because other team members had less patient contact throughout the day.

To prepare for the QI project, we selected 7 nursing superusers who educated and trained all nursing staff in the MICU on how to administer and document cognitive stimulation. To document completion of cognitive stimulation in the electronic medical record (EMR), nurses selected a simple categorical response: yes, no, or not applicable. The QI team monitored compliance with documentation of cognitive stimulation by reviewing the EMR, and superusers reeducated nurses on the process as needed. Review of cognitive stimulation documentation rates revealed that by December 2017, approximately 3 months after we launched the QI project, documentation

Table 1 Interview guide

1. What are your thoughts on the cognitive stimulation QI project that is currently occurring in the MICU?
2. What do you think are barriers to documenting whether the cognitive stimulation packet was reviewed with patients?
3. Probe: Can you give some examples of a time you did not document and why?
4. What do you think are barriers to reviewing the cognitive stimulation packet with patients?
5. Probe: Can you give some examples of a time you did not review with a patient and why?

Abbreviations: MICU, medical intensive care unit; QI, quality improvement.

was low (~30%), making it challenging for us to infer an implementation rate. Therefore, in October 2018, the QI team decided to conduct semistructured interviews with nurses in the MICU to qualitatively evaluate barriers to nurse-driven cognitive stimulation.

Development of the Interview Guide

One member of the QI team (A.M.P.), who has expertise in qualitative research, developed the interview guide; all members of the team then reviewed the guide and provided input about revisions. The final guide consisted of 5 questions with probes (to be used as needed; Table 1). After the guide was finalized, we approached nurses for interviews.

Interview Process

From October through December 2018, the team used purposive sampling to select nurses to be interviewed. To avoid the busiest time of the shift, the interviewer approached nurses working the day shift in the midafternoon, and approached nurses working the night shift approximately

1 hour before the shift change. **Cognitive stimulation is an evidence-based method for managing delirium in intensive care unit patients.**

Interviews took place in the MICU, either at the work desk outside of the patient rooms or at a nursing station. A physician member of the team (A.M.P.) conducted the first 4 interviews and then trained another physician (L.A.) to assist with the remaining interviews. To encourage nurses to respond openly about perceived barriers, physician members of the QI team conducted the interviews because they were not the nurses' direct supervisors, and the

interviewers did not audio-record the interviews (and thus nurses' feedback has not necessarily been transcribed verbatim here). Interviewers recorded detailed field notes, including nurses' responses to questions, points of clarification, their own reflections on nurses' responses, and any other details they perceived to be potentially relevant.

Coding and Development of Themes

The interviewers initially asked nurses questions regarding barriers to the implementation of cognitive stimulation in the MICU. Most nurses also discussed facilitators, and so the codebook included both barriers to and facilitators of the implementation of cognitive stimulation. We analyzed data using thematic analysis.²²⁻²⁴ One of the reviewers (A.M.P.), who has expertise in qualitative research methods, supervised the coding, trained 2 other reviewers (L.A. and N.A.), and ensured the quality of the coding. The 2 additional reviewers independently read the field notes line by line and inductively created a codebook. For the initial round of coding, the second coder coded the first 7 interviews in

reverse order. Then the 3 members of the coding team met in person to

Nurse-driven cognitive stimulation was implemented in our medical intensive care unit via a structured quality improvement project.

evaluate themes within the coded interviews. As the interviews continued, 2 of the reviewers (L.A. and N.A.) independently coded them concurrently; the third reviewer (A.M.P.) resolved any discrepancies. After every 3 to 5 interviews, the reviewers updated the codebook and evaluated coding saturation. Coding saturation was achieved after 20 interviews; 3 more interviews were conducted to confirm saturation (for a total of 23 interviews). All 3 reviewers then updated and reviewed the codebook to confirm its completeness. Two reviewers (L.A. and N.A.) independently coded each interview; the third reviewer (A.M.P.) resolved any discrepancies.

The coding team summarized barriers and facilitators into themes, which they then mapped using the Consolidated Framework for Implementation Research (CFIR), a set of constructs that allows for systematic and comprehensive evaluation of implementation.¹⁵ The 5 CFIR domains include Intervention Characteristics, Outer Setting, Inner Setting, Characteristics of Individuals, and Process (Table 2).²⁵ Through member-checking, a

strategy that allows investigators to evaluate the reliability of qualitative data,²⁶ 3 MICU nurses confirmed the completeness and accuracy of the themes. Three independent reviewers (L.A., N.A., and A.M.P.) assigned each barrier and facilitator to a CFIR construct, resolving discrepancies through discussion to achieve consensus. Details of this qualitative project are reported through the use of the Consolidated Criteria for Reporting Qualitative Research.²⁷

Results

Respondent Characteristics

We interviewed 23 nurses working in the MICU. All nurses who were approached agreed to participate. Among the nurses interviewed, 17 (74%) were women and 12 (52%) were working the day shift at the time of the interview. Nurses had been practicing for a mean of 9 years (SD, 9 years) and had worked in the MICU at Johns Hopkins Hospital for a mean of 6 years (SD, 7 years). Each 5-question semistructured interview took up to 10 minutes to complete.

Of the 23 nurses interviewed, 22 (96%) were aware of the QI project, had attempted cognitive stimulation with at least 1 patient, and identified multiple barriers to cognitive stimulation in the MICU. Nineteen (83%) of the nurses identified at least 1 factor that facilitated the implementation of cognitive stimulation.

Descriptions of Barriers and Facilitators

During their interviews, nurses identified 62 barriers to and 26 facilitators of the implementation of cognitive stimulation. These elements were summarized into themes—12 barriers (Table 3) and 9 facilitators (Table 4)—that we mapped to the CFIR domains and constructs.

Intervention Characteristics. During the interviews, 10 nurses (43%) reported that the current method for documenting cognitive stimulation in the EMR (free-text entry) was a barrier to implementation. Nurses stated that having a designated section in the EMR that included drop-down lists would facilitate implementation of cognitive stimulation.

Some nurses commented on the adaptability of the cognitive stimulation intervention, suggesting that it might be more appealing to some patients if it could be delivered via an electronic tablet. Similarly, nurses believed that the intervention could be improved by

Table 2 Consolidated Framework for Implementation Research domains and reported constructs as defined by Damschroder et al²⁵

Domains and their relevant constructs	Description
Intervention Characteristics	Core components of the intervention itself and an “adaptable periphery” including elements, structures, and systems related to the intervention
Adaptability	“The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs”
Design quality	“Perceived excellence in how the intervention is bundled, presented, and assembled”
Outer Setting	The economic, political, and social context of the organization that an intervention occupies
Patient needs and resources	“The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization”
Inner Setting	“. . . structural, political, and cultural contexts through which the implementation process will proceed”
Culture	“Norms, values, and basic assumptions of a given organization”
Implementation climate	“The absorptive capacity for change, shared receptivity of involved individuals to an intervention, and the extent to which use of that intervention will be ‘rewarded, supported, and expected within their organization’”
Relative priority	“Individuals’ shared perception of the importance of the implementation within the organization”
Structural characteristics	“The social architecture, age, maturity, and size of an organization”
Available resources	“The level of resources dedicated for implementation and ongoing operations including money, training, education, physical space, and time”
Characteristics of Individuals	“. . . individuals involved with the intervention and/or implementation process”
Knowledge and beliefs about intervention	“Individuals’ attitudes toward and value placed on the intervention, as well as familiarity with facts, truths, and principles related to the intervention”
Process	Interrelated subprocesses that aim “to achieve individual and organizational level use of the intervention as designed”
Engaging	“Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities”

translating it into other languages so that non-English-speaking patients could use it.

Outer Setting. Nurses most frequently reported patient-specific variables as barriers to cognitive stimulation; 20 nurses (87%) reported such barriers. Nurses stated that some patients did not cooperate with cognitive stimulation because they did not like the workbook or because they were sedated, in pain, agitated, or fatigued. Among these barriers, nurses most commonly mentioned sedation as a barrier to cognitive stimulation. Some nurses described their apprehension about offering the packet because of perceived patient opposition; others said that patients declined to participate in cognitive stimulation. Although 1 nurse was sometimes concerned that she might offend patients by asking them to complete the relatively simple tasks, she addressed this

potential barrier by explaining to reluctant patients the reasons for cognitive stimulation.

Nurses also pointed out that cognitive stimulation using the packet could be challenging for patients who do not speak English, who have impaired hearing or vision, or who have difficulty using their hands. At least 1 nurse described a lack of familial support for cognitive stimulation.

Inner Setting. Seventeen nurses (74%) reported that the current environment in the MICU did not support cognitive stimulation as a relative priority. For example, 1 nurse reported: “Sometimes it feels it’s less of a priority than other tasks, especially in the ICU.” Similarly, nurses working the night shift believed that patients’ sleep was a priority and thus that cognitive stimulation should be administered only during the day shift. Nurses also referred to staff-related barriers to implementing

Table 3 Barriers to implementation of cognitive stimulation, by CFIR domains and constructs

Domain	Construct	Barriers	Example statements ^a
Intervention Characteristics	Design quality	Documentation—no designated section in EMR	“In Epic, ^b there’s not a specific spot to document [cognitive stimulation]. You have to write it in as a comment.” “There’s no specific box in Epic.”
Outer Setting	Patient needs and resources	Patient not cooperative/ declines because of sedation, pain, agitation, fatigue, disinterest	“Some patients are angry at the world and I’m trying to interact as little as possible with them, and this is an easy thing to just not do.” “If I can barely get their meds in (because they are refusing things), I doubt I can get them to do the packet.” “The hard part is with patients who are sedated but it’s awesome for people who are awake and need a little push.”
		Communication barriers (does not speak English, has visual or hearing impairment, is restrained)	“Patients who can’t use their hands might not be able to do it. If they can talk, they can at least answer me when I ask them the questions, but if they can’t use their hands or talk, they can’t do it. For example, this happens with patients who are restrained.” “Visual acuity can be a problem[, that is,] if they can’t see it.” “We get a lot of Spanish-speaking patients and we don’t have translators who are present in person.”
		Family does not support cognitive stimulation	“The patient’s family . . . they interfere with it, they give the patient the answer because they think they are helping or they don’t want us to do it.”
Inner Setting	Relative priority	Cognitive stimulation is not a priority	“Nurses don’t feel it’s crucial.” “If I’m busy . . . it’s lower in my priority list.” “Somedays it’s hard to get to it. You know, it’s one more thing to add.”
	Implementation climate	Night shift not perceived as the appropriate time to do cognitive stimulation	“I do it more during day shift than night. After 11 PM, I just want them to sleep.” “We tuck them in, give meds, and treat symptoms. Night shift is a different culture.”
	Structural characteristics	Nurse staff barriers (workload, staff turnover, lack of patient continuity)	“I’m busy. We’re understaffed.” “I can’t tell if it’s helping, if the patients are benefitting. We don’t have continuity so I don’t know from one day to the next if it’s helping.” “I feel every couple of months there’s an additional task added without consulting nurses.”
	Available resources	Burden of documentation	“So much documentation that we have to go through, that little piece is sometimes missed.” “We have to document so much, so sometimes it slips our minds.”
		Packet availability	“People have written on them with permanent marker, and you have trouble finding a clean packet.”
Characteristics of Individuals	Knowledge and beliefs about the intervention	Lack of understanding of, or appreciation for, evidence supporting cognitive stimulation	“I think it’s just to validate something. I think the CAM-ICU is good enough. We don’t need to do more assessments.” “I mean I see what the thought behind it is, but our interaction is a better overall view.” “For patients who are alert and oriented, it’s useless.”
		Nurse perceives that patient will be offended because patient has high cognitive function	“For patients who are a RASS [score] of 0, they look at us like, ‘Why are they making us connect the dots?’” “They look at me like, ‘Why am I doing this?’ because they are alert and oriented.”
		Nurse not familiar with packet	“I’m sorry, I’m a travel nurse. Can you tell me about it?” “[Lack of] familiarity or comfort.”

Abbreviation: CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; CFIR, Consolidated Framework for Implementation Research; EMR, electronic medical record; RASS, Richmond Agitation-Sedation Scale.

^a Statements represent extracts from field notes and are not necessarily verbatim quotes.

^b Epic is the electronic medical record.

Table 4 Facilitators of implementation of cognitive stimulation, by CFIR domains and constructs

Domain	Construct	Facilitators	Example statements ^a
Intervention Characteristics	Design quality	Designated section in EMR	"If it had a separate section [in Epic ^b], it would be easier." "Drop-down list with the options would be helpful."
	Adaptability	Translate into other languages; have interpreter services at bedside Consider using a tablet or add more complex cognitive tasks to the packet for patients with higher cognitive function ^c	"We use translators through phones. It's really hard for them to explain it over the phone . . ." "Maybe it would be more appealing if you could use a tablet instead of a paper packet."
Outer Setting	Patient needs and resources	Patient education on the benefits of cognitive stimulation	"It's important to explain why you're doing it. I say, 'We do this just to keep your brain active.'"
Inner Setting	Culture	Culture that supports research, quality improvement, and patient-centered care	"I'm used to doing research so I don't mind doing anything to help patient care."
Characteristics of Individuals	Knowledge and beliefs about the intervention	Appreciation for the importance of preventing delirium and the benefits of cognitive stimulation	"For some patients, it's really helpful, especially in long-term sedated patients. It helps them recover from delirium." "Good benefits . . . could help patients. Help understand cognitive outcomes." "I'm for it. Anything that prevents delirium."
Process	Engaging	Incorporation into workflow (add to daily task list and rounds report, administer with delirium assessment, complete checklist for cognition/delirium documentation; reminders [daily electronic reminders at 8 AM and 8 PM])	"Maybe it would be helpful if the documentation for the following could be done all at the same time and in the same location in Epic (ie, the same flowsheet): AM-PAC, [JH-HLM scale], [CAM-ICU], cognitive stimulation." "The best time to do the packet is probably with the second assessment of the day. For the first assessment, you're just trying to catch up. After the first 4 hours, you've settled in." "We need a checklist to make sure all the nurses are being told where to document."
		Education and training	"There has been a lot of education. I'm surprised to hear that nurses aren't documenting."

Abbreviations: AM-PAC, Activity Measure for Postacute Care; CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; CFIR, Consolidated Framework for Implementation Research; EMR, electronic medical record; JH-HLM, Johns Hopkins Highest Level of Mobility; RASS, Richmond Agitation-Sedation Scale.

^a Statements represents extracts from field notes and are not necessarily verbatim quotes.

^b Epic is the electronic medical record.

^c Nurses reinforce this theme by member checking.

cognitive stimulation, including the overall workload, staff turnover, and lack of patient continuity. A representative statement was, "Any task that doesn't have specialists falls on nurses." Overall burden of documentation was also cited as a barrier to implementing cognitive stimulation.

Other nurses believed that the MICU culture supported QI projects or research focused on improving patient care, and they described how this culture facilitated implementation of cognitive stimulation. These nurses often compared the current QI project involving cognitive stimulation to a prior structured QI project that focused on reducing sedation and delirium among patients in the same MICU.¹⁸

Packet availability was also a barrier to implementation. Nurses reported that packets were unusable or sometimes missing from patient rooms.

Characteristics of Individuals. Ten nurses (43%) described having an incomplete understanding of the evidence supporting cognitive stimulation to prevent and treat delirium in critically ill patients, and they cited this as a barrier to implementation. Moreover, some nurses were reluctant to engage in cognitive stimulation patients whom they perceived as having no cognitive impairment, because they worried that such patients would be offended by what the nurses considered to be simple tasks. Other nurses reported that their appreciation for the benefits

of cognitive stimulation and the importance of preventing and treating delirium motivated their efforts to engage patients in cognitive stimulation. Only 2 nurses acknowledged a lack of familiarity with the packet, especially among new or travel nurses, as a barrier to administering cognitive stimulation.

Process. Although nurses mentioned no barriers to cognitive stimulation that could be categorized within the CFIR Process domain, they did suggest several potential facilitators within this domain. Nurses frequently referred to existing multidisciplinary education and training about the administration and documentation of cognitive stimulation, which had been established within the structured QI project, as facilitators for implementation. Some nurses stated that more training was necessary and suggested a process for periodic reeducation. At least 1 nurse believed that training families to assist with cognitive stimulation would be helpful.

Nurses had several ideas about incorporating cognitive stimulation into their daily workflow (Table 4). They suggested administering and documenting cognitive stimulation when assessing cognition with the Confusion Assessment Method for the ICU²⁸ and the Richmond

Agitation-Sedation Scale.²⁹ Nurses

Patient-specific variables, eg, sedation status, were the most frequent barriers.

reported that reminders to administer and document cognitive stimulation facilitated its implementation. These reminders included a prompt during each shift through the unit phones all nurses carry.

Results of Member-Checking

Three nurses agreed that the barrier and facilitator themes represented the nurses' thoughts regarding cognitive stimulation. They emphasized the overall desire for more autonomy in delivering the intervention, including the addition of more complicated tasks for patients who are cognitively intact and the option to use an electronic tablet to administer cognitive stimulation (see the Process section just above, and Table 4).

Discussion

Through this qualitative project in an academic MICU in the United States, nurses identified barriers to and facilitators of implementation of cognitive stimulation,

and these were summarized into 12 and 9 themes, respectively, corresponding to the CFIR domains. These themes arose from the organization, context, and individuals associated with the intervention, as well as the intervention itself. Nurses also identified potential facilitators within the implementation process (related to the construct Engaging).

Identifying barriers to implementation is an important step in the QI process,²⁰ and it is a critical aspect of intervention implementation. The most commonly cited barriers to cognitive stimulation were patients declining to participate or not cooperating because they were sedated, in pain, agitated, fatigued, or disinterested; these barriers fell within the CFIR Outer Setting domain and the construct Patient Needs and Resources.²⁵ Sedation was the most frequently cited reason for patients' inability to cooperate with cognitive stimulation. This finding is consistent with evaluations of barriers to other ICU-based interventions, including early mobility and delirium assessment. In a systematic review of 40 studies, Dubb et al³⁰ identified "patient-related" barriers as the most commonly reported barriers to early mobilization of critically ill patients; among such barriers, sedation was reported most frequently. Similarly, Devlin et al³¹ evaluated 331 ICU nurses' practices and perceptions regarding delirium assessments and found that sedation was 1 of the more commonly reported barriers to delirium assessment. Sedation might be an appropriate contraindication to cognitive stimulation, as some patients require deep sedation for severe acute respiratory distress syndrome or other medical conditions. In other instances, however, an opportunity exists for improved sedation practices, similar to those first fostered by a structured QI project in the Johns Hopkins Hospital MICU that aimed to decrease sedation and delirium by applying a sedation protocol; those practices were associated with more wakefulness among patients.³²

Another frequently reported barrier, corresponding to the CFIR domain Characteristics of Individuals and the construct Knowledge and Beliefs About the Intervention, involved nurses' perceptions of some patients as cognitively intact (not delirious) and thus unlikely to benefit from cognitive stimulation. This perception raises 2 important issues regarding the management of delirium in patients in the ICU. First, nurses and physicians substantially underrecognize delirium and associated cognitive impairment among such patients. In a study

following 46 patients during 425 patient-days, investigators used the Confusion Assessment Method for the ICU as the reference standard for delirium assessment, and the results showed that nurses detected only 35% of delirium days; physicians, only 28%.³³ Second, cognitive stimulation can prevent the development of delirium in critically ill patients who seem to be otherwise cognitively intact,¹⁵ and primary prevention is likely the most effective strategy for reducing the complications, such as cognitive impairment, associated with delirium.³⁴ Indeed, in a study of more than 800 hospitalized older patients, a multicomponent intervention successfully prevented delirium; when delirium occurred, however, the intervention did not improve its severity nor reduce the likelihood of a subsequent episode.³⁴

Nurses identified several facilitators within the CFIR Process domain and the construct “engaging.” First, nurses acknowledged the existing training and education that were part of the planning and preparation for this QI project but thought more was needed. Our QI team responded by presenting evidence for cognitive stimulation and the progress of the QI project at MICU staff meetings and by identifying an occupational therapist who engaged the nurses in additional training. Moreover, nurse members of the QI team (M.G., S.Y.) incorporated into subsequent superuser training various types of education: evidence supporting cognitive stimulation, creative ways to engage patients in cognitive stimulation, and appropriate documentation. The nurse superusers also conducted real-time audits and gave immediate feedback, which included further education as needed. This iterative approach to implementation, including sharing evidence to support the intervention and providing feedback on performance measures, is an important but often overlooked aspect of translating evidence into practice.^{20,25}

Second, nurses suggested several ways to incorporate cognitive stimulation into their daily workflow. As part of the QI planning process, members of the multidisciplinary QI team directly observed nurses and found that they have very little time for additional tasks.³⁵ Thus, incorporating cognitive stimulation into nurses’ patient care routine is essential for successful implementation. The most commonly suggested strategy for doing so was to administer and document cognitive stimulation when assessing sedation (Richmond Agitation-Sedation Scale) and delirium (Confusion Assessment Method for the ICU).

Limitations

Our study had several limitations. First, in this qualitative evaluation, we attempted to minimize bias by having at least 2 independent reviewers code field notes and categorize emerging themes, and by resolving discrepancies through consensus with a third independent reviewer. Also, to assess the reliability of our data, we performed member-checking, whereby we elicited feedback on themes from several MICU nurses. Second, we interviewed a subset of nurses from a single ICU, and so the emergent themes might not represent the views of nurses in other units. The aim of this investigation, however, was to identify barriers to cognitive stimulation within the setting of a structured QI project in the Johns Hopkins Hospital. Third, nurses were interviewed during their shifts; interviewers offered to return during a more convenient time, if necessary, but only 1 nurse requested that the interviewer reschedule to a less busy time. The interviewers noted that nurses seemed eager to share their thoughts on the cognitive stimulation project. Finally, interviews were not recorded to maintain anonymity and to encourage nurses to speak openly about their thoughts on the cognitive stimulation project. In place of transcribed interviews, interviewers kept detailed field notes, as described in the Methods section.

Conclusion

Cognitive stimulation is an evidence-based method for managing delirium. Implementation of cognitive stimulation requires multidisciplinary efforts to address barriers and recognize facilitators. Barriers arise from attributes of the organization and the context in which the intervention resides, of the individuals involved, and of the intervention itself. By optimizing implementation of cognitive stimulation interventions, future studies can focus on evaluating their efficacy and generalizability. **CCN**

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See also

To learn more about delirium in the critical care setting, read “Delirium Monitoring: Yes or No? That Is The Question” by Marra et al in the *American Journal of Critical Care*, 2019;28(2):127-135. Available at www.ajcnonline.org.

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Cognitive Stimulation in an Intensive Care Unit: A Qualitative Evaluation of Barriers to and Facilitators of Implementation

Delirium in the intensive care unit is associated with poor patient outcomes. Recent studies support nonpharmacological therapy, including cognitive stimulation, to address delirium. The authors used qualitative methods to evaluate potential barriers to and facilitators of implementation of a cognitive stimulation intervention in a medical intensive care unit.

- The team decided to introduce brief cognitive stimulation activities that would be delivered by nurses. Because documentation was low, the team decided to conduct interviews with nurses to evaluate barriers to nurse-driven cognitive stimulation.
- Nurses identified barriers to and facilitators of the implementation of cognitive stimulation that were summarized into themes—12 barriers and 9 facilitators.

Barriers

- Documentation—no designated section in the electronic medical record
- Patient not cooperative/declines because of sedation, pain, agitation, fatigue, disinterest
- Communication barriers
- Family does not support cognitive stimulation
- Cognitive stimulation is not a priority
- Night shift not perceived as the appropriate time to do cognitive stimulation
- Nurse staff barriers (eg, workload, staff turnover)
- Burden of documentation
- Packet availability
- Lack of understanding of, or appreciation for, evidence supporting cognitive stimulation
- Nurse perceives that patient will be offended because patient has high cognitive function
- Nurse not familiar with packet

- The most commonly cited barriers to cognitive stimulation were patients declining to participate or not cooperating because they were sedated, in pain, agitated, fatigued, or disinterested.
- Another frequently reported barrier, involved nurses' perceptions of some patients as cognitively intact (not delirious) and thus unlikely to benefit from cognitive stimulation. This perception raises 2 important issues regarding the management of delirium in patients in the intensive care unit. First, nurses and physicians substantially underrecognize delirium and associated cognitive impairment among such patients. Second, cognitive stimulation can prevent the development of delirium in critically ill patients who seem to be otherwise cognitively intact, and primary prevention is likely the most effective strategy for reducing the complications, such as cognitive impairment, associated with delirium.

Facilitators

- Designated section in electronic medical record
- Translate into other languages
- Consider using a tablet or add more complex cognitive tasks to the packet for patients with higher cognitive function
- Patient education on the benefits of cognitive stimulation
- Culture that supports research, quality improvement, and patient-centered care
- Appreciation for the importance of preventing delirium and the benefits of cognitive stimulation
- Incorporation into workflow (add to daily task list and rounds report, administer with delirium assessment)
- Education and training

Parker AM, Aldabain L, Akhlaghi N, Glover M, Yost S, Velaetis M, Lavezza A, Manthey E, Albert K, Needham DM. Cognitive stimulation in an intensive care unit: a qualitative evaluation of barriers to and facilitators of implementation. *Critical Care Nurse*. 2021;41(2):51-61.