

Performance Improvement

A Population-Based Care Improvement Initiative for Patients at Risk for Delirium, Alcohol Withdrawal, and Suicide Harm

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Clinicians face challenges in delivering comprehensive psychological and medical care to patients with complex needs, such as those presenting with delirium, alcohol withdrawal, suicide risk, and potential harm to others. Although these issues can affect patients across a wide spectrum of ages, they are particularly common among the elderly, and are therefore expected to become increasingly important issues for hospitals as the population in the United States and elsewhere ages. Approximately 20% of all patients admitted to a general hospital had a mental health condition as a principal or secondary diagnosis.¹ A recent Institute of Medicine report identified a “silver tsunami” facing health care by 2030 and highlighted the critical shortage of clinicians prepared to provide both mental health and geriatric care to these populations of patients presenting to the hospital settings.²

The vast majority of patients presenting to a general hospital with serious signs and symptoms of acute illness are admitted for a presumed medical disorder. Typically, internists and surgeons do not consider mental health diagnoses very highly in their differential of the presenting symptoms. The possibility that a comorbid mental disorder may be contributing to or complicating the presentation also might not be considered. Thus, behavioral health disorders in general medical patients may frequently go unidentified, and their impact on the clinical presentation may be underappreciated.

Estimates of the prevalence of delirium on admission to acute care hospitals range from 10% to 31%.³ Yet the prevention, identification, and effective treatment of delirium⁴ is challenging,⁵⁻⁷ reflecting a lack of standardized language, variability of assessment, and use of other diagnoses (for example, acute confusional state, ICU psychosis, encephalopathy) for delirium. The inability to correctly identify the syndrome has the potential to adversely affect the treatment and overall patient outcomes during acute hospitalizations.⁸ Morbidity, mortality, and costs associated with delirium are both substantial and well documented.⁹ One study concluded that, compared to a sim-

Article-at-a-Glance

Background: In a population-based approach, a hospital-wide interprofessional care redesign at Brigham and Women’s Hospital (BWH; Boston), was conducted to provide optimal evidence-informed care for patients at risk for delirium, alcohol abuse, and suicide harm (DASH). The initiative involved enhanced screening and the introduction of new care management guidelines and order sets pertaining to the DASH diagnoses.

Methods: An interprofessional group from medicine, nursing, and psychiatry jointly led a hospitalwide effort for the improvement of care and outcomes of patients presenting with a DASH diagnosis (delirium, alcohol withdrawal, and suicide harm). The care improvement process consisted of four phases: (1) development of guidelines, (2) implementation/rollout, (3) integration into practice, and (4) sustainability, including ongoing practice development and evaluation.

Results: Implementation outcomes were evaluated using eight parameters—acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability. Internal billing data and ICD-9-CM [International Classification of Diseases, Ninth Revision, Clinical Modification] diagnostic codes were used to identify the DASH population. Patients were compared pre- and postprogram implementation for fiscal years 2010 through 2013. The average length of stay, reported as the number of midnights in the hospital, remained consistent for DASH patients—9.3–10.0 days (versus 5.3–6.0 days for BWH overall). The DASH readmission rate decreased by 9%—from 15.1% to 13.7%, approaching the overall BWH rate of 13.3%.

Conclusion: Close nurse-physician collaboration, including joint leadership and simultaneous rollout for nurses and physicians, contributed to the initiative’s effective implementation.

ilar cohort of patients without delirium, patients who developed delirium incurred more than \$21,000 in additional health care costs.¹⁰ Moreover, hospitalized patients with delirium have a significantly increased 12-month mortality compared to patients without delirium.¹¹

Alcohol use, which is estimated to contribute to 21%-42% of patients admitted to general hospital units,¹²⁻¹³ affects 40% of patient admissions in the medical and surgical setting.¹⁴ Standardization of patient assessment procedures allows for early recognition of alcohol abuse, with the attendant potential for alcohol withdrawal.¹⁵ Early recognition of this risk of alcohol withdrawal in turn provides an opportunity to provide improved quality of care by providing enhanced monitoring for alcohol withdrawal symptoms and prompt treatment when symptoms arise. Like delirium, alcohol withdrawal symptoms (such as nausea, tremors, anxiety, agitation, sweats, headaches, and visual disturbances) can mimic other clinical presentations, such as sepsis or dehydration. Standardized screening for the risk of alcohol withdrawal helps ensure that the possibility of alcohol withdrawal in at-risk patients is considered as a possible diagnosis in appropriate patients.

Suicide rates continue to rise in the United States^{16,17}; suicides represent one of the most frequently reported sentinel events in acute care hospitals.¹⁸⁻²⁰ The Joint Commission's National Patient Safety Goal 15 requires that, in the case of acute care hospitals treating patients for emotional or behavioral disorders or of psychiatric hospitals, self-harm risk assessments be performed and discharge resource information be provided to patients presenting with suicidal ideation.²¹

Clinicians who are unprepared to manage the psychological care of these patients often resort to strategies such as security details, one-on-one observers, and restraints.²² Patients at risk to harm themselves require risk assessment and focused care planning to maintain safety.

At Brigham and Women's Hospital (BWH), a 793-bed urban tertiary care academic medical center in Boston, 40% of our patients had delirium, alcohol abuse, or a combination of both during their admission, similar to rates reported in the literature.^{3,14,18,23,24} These conditions represent the majority of our patients requiring restraints and one-on-one observation. Previous efforts to decrease observer and restraint usage within our institution²² were helpful in demonstrating that there were opportunities to improve the care of the core delirium, alcohol withdrawal, and suicide harm (DASH) populations. In 2007 senior leadership at our hospital inaugurated a focused effort to improve the quality and safety of care provided to these at-risk patient populations, which gave rise to the DASH initiative. We

were confident that an upstream approach—addressing education, mental status assessment, and standardization of care—would help us achieve our institutional goal of enhancing the care of the DASH population.

Given the large number of patients in the acute care setting affected by delirium, alcohol, or suicidal ideation, we chose a population-based approach. In designing assessment and intervention protocols, we bundled these high-risk conditions into a comprehensive evidence-informed program, beginning with separate working groups focusing on each population. Although national programs²⁵⁻²⁹ have advanced the evidence-based care of hospitalized elders and patients in the ICU setting, we identified a need to standardize assessment and treatment across departments and settings. In this article, we review the development and implementation of an interprofessional care redesign for patients at risk for delirium, alcohol withdrawal, and suicide harm admitted to BWH.

Methods

CREATING AN INTERPROFESSIONAL TASK FORCE

In September 2007 three BWH executive sponsors (Chief Medical Officer [CMO], Chief Nursing Officer [CNO], and Chief of Psychiatry) charged an interprofessional group from medicine, nursing, and psychiatry to jointly lead a hospitalwide effort that would improve the care and outcomes of patients presenting with a DASH diagnosis. The care improvement process consisted of four phases: (1) development of guidelines, (2) implementation/rollout, (3) integration into practice, and (4) sustainability, including ongoing practice development and evaluation.

DEVELOPMENT OF GUIDELINES

(SEPTEMBER 2007–SEPTEMBER 2009)

With a formal charge from the executive sponsors, trichairs from medicine, nursing, and psychiatry invited more than 60 interprofessional expert clinicians to join one of three DASH teams, each of which focused on one of the three core DASH patient groups: those with delirium, alcohol withdrawal, and suicide harm. Each team met weekly to monthly during a two-year period to review the following:

- Existing practice and opportunities for improvement
- Current literature to identify the most up-to-date, evidence-based practice to guide assessment and treatment
- Existing hospital policies, procedures, and drug administration guidelines so as to identify those that required updating, removal, or development
- Best-practice interventions in place at similar organizations

Table 1. Education Resources Available Electronically and in Paper Format on All Care Units

Slide Decks	<ul style="list-style-type: none"> Delirium Prevention and Treatment: A Multidisciplinary Approach to Care Delirium: The Nurse's Role in Evidence-Based Practice Delirium: The Patient Care Associates (PCA) Role in Providing Safe Care Alcohol Withdrawal: A Multidisciplinary Approach to Risk Identification and Treatment Alcohol Withdrawal: Nursing Risk Assessment and Treatment Suicidal Ideation: A Multidisciplinary Approach to Safe Care Suicide Risk Assessment and Treatment: The Nurses Role
Fact Sheets	<ul style="list-style-type: none"> Delirium: Facts and Frequently Asked Questions Delirium: Patient Nursing Management Guidelines Delirium: Patient Care Associate Approach to Providing Safe Care Alcohol Withdrawal: Facts and Frequently Asked Questions Alcohol Withdrawal: Nursing Management Guidelines Alcohol Withdrawal: Patient Care Associate Approach to Providing Safe Care Suicide: Facts and Frequently Asked Questions Suicidal Ideation: Nursing Management Guidelines Suicidal Ideation: Providing Constant Observation and Safe Care
Videos	<ul style="list-style-type: none"> DASH: Overview, Assessment tools, Guidelines Simulated Care Scenarios CAM-ICU-Modified: Overview of Assessment tool, Demonstration, Simulation AUDIT-C: Overview, Demonstration, Simulation CIWA-Ar: Overview, Demonstration, Simulation
<p>DASH, delirium, alcohol abuse, and suicide harm; CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; AUDIT-C, an evidenced-based screening tool for alcohol use disorders that was developed by the World Health Organization; CIWA-Ar, Clinical Institute Withdrawal Assessment of Alcohol Scale.</p>	

Each team developed interprofessional practice guidelines for delirium, alcohol, and suicide harm respectively, and the interprofessional educational resources to support them.^{30,31} The trichairs presented the DASH recommendations from the three teams to the executive sponsors, with recommendations for assessment tools and treatment guidelines. For delirium, the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU),³² was selected for identification of delirium. The Alcohol Use Disorders Identification Test (AUDIT-C), an evidenced-based screening tool that was developed by the World Health Organization,³³ was chosen to identify patients at risk for alcohol withdrawal. In patients identified as being at risk for alcohol withdrawal, the Clinical Institute Withdrawal Assessment of Alcohol Scale (CIWA-Ar)³⁴ was selected to assess for the presence and severity of alcohol withdrawal symptoms,

Screening Tools, Care Guidelines, Order Sets, and Policies

Screening Tools

- Confusion Assessment Method for the ICU-Modified (CAM-ICU-Modified)¹
- Alcohol Use Disorders Identification Test (AUDIT-C)²
- Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar)³
- Two Suicide Screening Questions:
 - Have you been thinking about hurting yourself?
 - If yes, do you have a plan?

Care Guidelines

- Delirium Guideline
- Alcohol Withdrawal Guideline
- Nursing Management Guidelines for the Suicidal Patient
- Constant Observer Guidelines

Order Sets

- Lorazepam Scale: for use with CIWA-Ar
- Suicide: when assessment screen is positive

Policies

- Search of Patient Effects
- Patient Disrobing
- Care of the Suicidal Patient
- Care of the Potentially Violent Patient

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- Ely EW, et al. Evaluation of delirium in critically ill patients: Validation of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU). *Crit Care Med*. 2001;29(7):1370–1379.
- Babor TF, et al. *The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care*, 2nd ed. Geneva: World Health Organization, 2001. Accessed May 31, 2015. http://whqlibdoc.who.int/hq/2001/who_msd_msb_01.6a.pdf.
- Sullivan JT, et al. Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar). *Br J Addict*. 1989;84(11): 1353–1357.

Figure 1. The screening tools, care guidelines, and supplemental resources were available electronically on an intranet website.

which in turn was used to guide treatment. To identify patients at risk of suicide harm, two screening questions were adopted: “Have you been thinking about intentionally hurting yourself? If yes, do you have a plan?” If answers were positive to these two questions the nurse would notify the physician and institute suicide precautions.

Educational resources (Table 1, above left), including laminated reference pocket cards of the delirium (Appendix 1, available in online article) and alcohol withdrawal guidelines (Appendix 2, available in online article) were developed for clinicians, to help make the DASH materials readily available. To increase access, adoption, and ease of use, the screening tools, care guidelines, and supplemental resources were available electronically on an intranet website (Figure 1, above). Educational brochures on delirium, alcohol withdrawal, and suicidal ideation (which provides community support options on discharge) were developed to aid staff in teaching hospitalized

patients and their families.³⁵ One innovative aspect of the DASH initiative was the design and distribution of information for the families of patients with the DASH conditions.

After executive sponsors' approval was obtained, the DASH recommendations were presented for review and comment to nursing, physician, and interprofessional stakeholders throughout the institution. When this institutional review of guidelines and materials was complete, the process moved into the implementation/rollout phase.

IMPLEMENTATION/ROLLOUT

Much as in the model used for guideline development, the executive sponsors charged the trichairs from nursing, medicine, and psychiatry to develop options for the implementation of the DASH guidelines throughout the institution by using existing resources. Because DASH was a population-based care improvement initiative bundled together for use across specialty areas, we began reviewing existing implementation processes and recognized that an infrastructure to support interprofessional learning did not exist. Medicine and nursing had distinct processes in place to support dissemination of new information, education, and care improvement. Nursing used the existing infrastructure, including unit-based leadership (nurse directors and nurse educators) and departmental processes. The DASH program is included in the unit-based competencies for nurses. Nurse educators teach the DASH material on each unit, and introductory DASH information is reviewed with newly hired nurses by the Center for Nursing Excellence during orientation. A simulation laboratory was used for role-playing and for filming of training videos. Nursing committees provided forums to review new tools, policies, and procedures in a timely manner to make rapid changes when necessary. A parallel infrastructure for education of physicians across multiple specialties did not exist. For example, there was no role comparable to the unit-based nurse educators among physicians. The hope had been to target as many of the physician specialties that had an inpatient presence as possible for education about the DASH material. Ultimately, limited resources were used to target specialties that deal with DASH issues most often, such as medicine and orthopedic surgery.

Nursing Implementation and Integration into Work Flow.

A nursing implementation group composed of associate chief, executive director, nurse director, nurse educator, staff nurse, and psychiatric advanced practice nurses reviewed and adapted recommendations to nursing work flow. The Plan-Do-Study-Act (PDSA)^{36,37} cycle was used on three pilot units to determine how to embed the assessment tools into the current nursing

Plan-Do-Study-Act (PDSA): Three Cycles, in a Three-Week Period

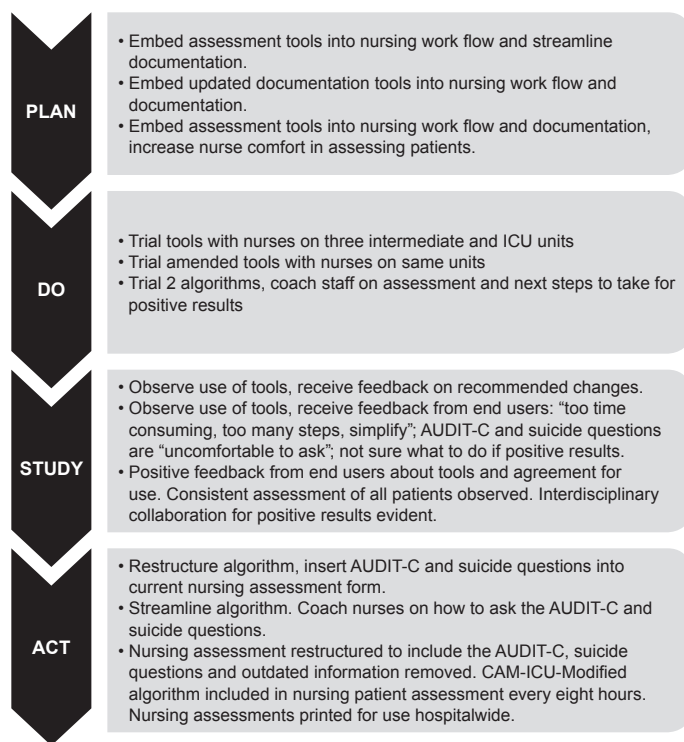


Figure 2. Three PDSA cycles were employed until final agreement was reached on the algorithm of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) that would be used throughout the hospital. The Plan-Do-Study-Act format was adapted from Lipschutz AK, et al. *Strategies for success: A PDSA analysis of three QI initiatives in critical care.* Jt Comm J Qual Patient Saf. 2008;34(8):435–444. AUDIT-C, *Alcohol Use Disorders Identification Test, an evidenced-based screening tool that was developed by the World Health Organization.*

work flow. Three PDSA cycles were employed until final agreement was reached on the CAM-ICU algorithm that would be used throughout the hospital (Figure 2, above).

The CAM-ICU would be administered to all ICU inpatients every eight hours to assess for delirium. Staff nurses requested that the CAM-ICU be further modified into an algorithmic format and reordered to follow their usual work flow. Thus, the CAM-ICU-modified would begin with feature IV, the Richmond Agitation-Sedation Scale³⁸ and be followed by features I, II, and III. In addition, in feature I, the mental status definition was broadened to reflect current nursing practice of assessing affective, behavioral, and cognitive changes; feature II, asking the patient to recite months of the year backward was added; and feature III was enhanced to include observations of disorganized thinking. This version would be used to assess all patients.

The AUDIT-C and suicide questions were used to assess all patients upon admission for risk of alcohol withdrawal and suicidal ideation and replaced less specific questions that already existed in the nursing assessment. A train-the-trainer model was deployed, beginning with the psychiatric advanced practice nurses providing training sessions for unit-based leadership, who, in turn, disseminated the information to nurses and patient care assistants in their care areas. The support of nursing leadership in each of the patient care areas, serving as an existing infrastructure accountable for the care provided on the clinical units, was critical to promoting this effort. In addition to the online resources and pocket reference cards, DASH unit resource manuals were developed to aid unit-based implementation and included paper copies of slide decks, fact sheets, policies, screening tools, care guidelines, order sets, and the names and contacts of physician and nurse champions.

Physician Implementation and Integration into Work Flow.

Physician implementation efforts were two-pronged. First, meetings were directed at clinical leadership who were key stakeholders for the overall effort, such as chairs and division chiefs, who could designate representatives to assist with implementation. Departmental and divisional leadership appointed a physician to serve as a “champion” for the DASH implementation efforts in their respective areas. These champions, along with members of the DASH committee, reached out to provide education to house staff and physician assistants, who make up a large proportion of the frontline clinicians who would be writing for the actual order sets developed as part of the DASH initiative. Particular attention was paid to physician groups, such as internal medicine and orthopedics, most likely to encounter the patient populations covered by the DASH initiative. In contrast to nursing, which used existing infrastructure to roll out new initiatives across all areas in the hospital, physician education involved physician cochairs of the DASH initiative requesting attendance at existing educational conferences held by various physician groups in the hospital. Educational strategy meetings at both unit and departmental level were held with various stakeholders at the attending and resident level to explain the DASH program and new assessment tools. During the physician educational rollout, treatment teams were encouraged to include a review of the results of the CAM-ICU-modified, AUDIT-C, and suicidal ideation assessment in daily patient rounds for selected patients. Requests for additional trainings came in over time and were provided by a physician or nurse cochair of the DASH to demonstrate an interprofessional approach to care. All education included orientation to the online resources and distribution of the laminated pocket-sized reference cards.

Second, with support from information technology, electronic clinical order sets were developed for patients at risk for alcohol withdrawal and suicide. The alcohol withdrawal order set included two main options. The first option was symptom-triggered, on the basis of the scores from the CIWA-Ar assessment tool, which measures the severity of the alcohol withdrawal symptoms. Alcohol withdrawal symptoms above a specified threshold triggered treatment with lorazepam, with dosing based on the severity of the symptoms. CIWA-Ar scores were obtained serially and used to guide the need for ongoing benzodiazepine dosing. The second option, a fixed-dosage lorazepam regimen, was available for patients with a history of severe alcohol withdrawal, those who were delirious, or those who were noncommunicative.

The suicide precautions order set provided a single location for all the orders necessary for the safe care of patients at risk for self-harm. One of the challenges in caring for such patients is that they are admitted to various services throughout the hospital, as there is no dedicated inpatient psychiatry floor in our hospital. Thus, there may be multiple frontline clinicians who only occasionally take care of such patients, limiting the experience that any single clinician has with such patients. The suicide precautions order set included orders—such as constant observation by a staff member and a “safe” food tray that did not include any sharp utensils—that might be overlooked by less experienced team members caring for patients at risk of self-harm. Having all these orders together in a single order contributed to the safe care of these patients.

Results

IMPLEMENTATION OUTCOMES AND EVALUATION

Implementation outcomes were evaluated using the eight parameters proposed by Proctor et al.³⁹—acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability.

Acceptability. The DASH guidelines and implementation plan were presented to major stakeholders (for example, Physician Chief’s Counsel, ICU Interprofessional Committee, Patient Care Services leadership, nursing leadership), who reviewed, revised, and signed off on the DASH materials. Senior leadership support of DASH was instrumental in information dissemination and acceptability.

The CNO/CMO communicated via e-mail and internal hospital publications about DASH implementation and set the expectation that that this program was meant to be used by all clinicians to improve care. Consistent utilization of the same assessment tools and guidelines provided a common language

for clinicians to discuss the clinical care needs of the DASH population. New electronic order sets were rolled out to facilitate care for patients at risk for alcohol withdrawal or self-harm. These order sets, which were designed to be user friendly and result in a net reduction in work for clinicians, were instrumental in encouraging frontline clinicians to integrate the DASH programs into their practice. Although the older technology of the computerized provider order entry system did not allow for inclusion of hyperlinks to the guidelines, the order sets did refer users to the location in the institution's clinical handbook that included the DASH guidelines and materials.

Adoption. The new tools were integrated into existing care processes, which facilitated adoption in daily care. The tools and guidelines were implemented early in some units and later in others. Early adopters reported that the tools were useful for identifying patients at risk for one of the DASH conditions and to advancing interprofessional discussions about care. An information gap in the departments of pharmacy and rehabilitation services was identified during interdisciplinary care rounds. Specifically, when review of CAM-ICU-modified, AUDIT-C, and suicide questions took place for those patients for whom there was a concern for the corresponding conditions, some of the pharmacists and rehabilitation therapists on rounds noted that they were unfamiliar with the assessment tools and guidelines. This pointed to an important group of clinicians that the initial DASH rollout had not focused on. DASH leadership was informed, and meetings with pharmacy and rehabilitation services were held to provide DASH information and education to these groups.

In May–June fiscal year (FY) 2012, nursing audits on 35 units were conducted to determine the rate of completed DASH questions on the nursing assessment within 24 hours of admission. These audits demonstrated that 90% of patients were screened with the AUDIT-C and that the suicide assessment was also completed on approximately 90% of patients. The primary reason that patients were not assessed within 24 hours was that they had been intubated or otherwise noncommunicative, but the reason for not completing the assessments had not always been documented.

Appropriateness. The CAM-ICU was already in use in some critical care settings. The modifications to the algorithm made it easier for nurses to use the tool throughout the institution. The AUDIT-C was met with some initial resistance because of skepticism about the appropriateness of screening for alcohol misuse in all settings. Coaching clinicians on how to ask questions about alcohol use increased their confidence and acceptance of the AUDIT-C as a screening tool. Ultimately, the AUDIT-C,

a well-validated tool for screening for problematic alcohol use, was viewed as being more effective than the previous screening questions, which provided less guidance regarding which patients should be flagged as possibly misusing alcohol. A positive screen on the AUDIT-C directed the nurse to notify the physician and begin discussions about what intervention (if any) should be instituted. The two alcohol withdrawal guidelines (the symptom-triggered approach utilizing the CIWA-Ar and the fixed-dose regimen) were welcomed by many as an improvement over what had been the traditional approach of having to estimate benzodiazepine dosing on the basis of clinical judgment regarding the severity of withdrawal symptoms.

Positive answers to the questions regarding suicide prompted the clinician performing the screen to take concrete clinical actions, such as instituting constant observation of the patient and involvement of the psychiatric consultation service. In addition, educational brochures were available to provide information to orient patients and their families to their safe care and management of the DASH conditions in the general hospital setting, as well as listing resources for ongoing community support. Particularly in the case of prevention and treatment of delirium, involvement of the family in the care of the patient can be of great benefit.

Feasibility. DASH documents (education content, tools, reference sheets, and education brochures) were placed on the hospital intranet to ensure that clinicians could easily access them. The suicide and alcohol withdrawal order sets were automated and inserted into the order entry system physicians use when admitting a patient. We reviewed the practicality of developing a delirium order set. However, the multiple different potential causes of delirium and nuanced clinical judgment required to effectively care for these patients made clustering optimal care guidelines for delirious patients in an electronic order set unfeasible. An audit review for the October 1, 2012–January 2, 2014, period revealed that the suicide order sets had been used 151 times, and the alcohol withdrawal order sets 1,509 times.

Fidelity. Physician and nursing champions coordinated the rollout of information across the institution to ensure that the majority of staff were aware of all program components at approximately the same time. E-mails from executive sponsors announced the go-live date and were repeated weekly for one month and then monthly for three more months. The DASH program was introduced at departmental and unit- and hospital-level meetings to push the message out across the organization. When the information was disseminated, diffusion of content within the institution was high.

We did, however, receive feedback—in certain cases through safety reports—that some clinicians were overriding or modifying the alcohol withdrawal order sets in ways that were not intended. When inquiries were made regarding why this was being done, a few clinicians raised concerns that different benzodiazepine dosing than what was in the order set was needed for certain patients. Particularly in the cases of elderly patients, some clinicians wanted to use lower-dose benzodiazepines. On the basis of this feedback, a third option in the electronic order set was developed that allowed for lower-dose treatment options for frail elderly and noncommunicative patients. We also reemphasized to the frontline clinicians that the use of the alcohol withdrawal order set was supposed to make caring for patients at risk for alcohol withdrawal easier but was not mandatory. We informed them that the various options in the alcohol withdrawal order set were designed to apply to most patients but not all. We made clear that clinical judgment should be used in deciding which patients might be best cared for outside of the clinical pathways contained in the alcohol withdrawal order set.

To ensure the fidelity or reliability of the alcohol order sets, additional work was required by the information technology engineers to build infrastructure that ensured that only one option could be chosen at a time and to make the order sets less subject to unintended alterations. We felt that in cases in which the ordering provider believed that the existing order set options did not apply to a patient, it was safer to have the patient cared for without using the order set rather than to have the clinician try to rework the order set.

Implementation Cost. Implementation was required to be completed using existing resources. A onetime direct cost of \$5,000 was allocated to replace outdated nursing assessment forms with the revised and updated forms. The indirect costs related to providing education and training to all clinicians during a three-month period was high. Leadership supported the institutional interdisciplinary rollout, which allowed the indirect education and training costs to be allocated from existing roles for this purpose. Education was offered in multiple venues on the units or in existing committees, rounds, or other educational forums.

Penetration. In addition to education offered in the train-the-trainer format at a unit, departmental, and group level, more than 1,100 of 3,600 nurses completed DASH information via an online education module within a four-week period. Physician education was less uniform, with those groups of physicians who most commonly treat DASH populations receiving education during preexisting educational conferences directly from one of the DASH physician cochairs, and with

other physician groups receiving training from physician champions in their areas. There appeared to be some variability in the effectiveness of the physician champions in disseminating information about the DASH program to their colleagues. A message from the CNO and CMO highlighting the program and education brochures was continuously streamed on screens throughout the institution during implementation.

Sustainability. Incorporating the new information, including assessments and care guidelines, into everyday practice required a different level of support at the point of care. Benner suggests that “Experiential clinical learning and situated coaching are central to the *formation* of the nurse’s skills, perceptual acuties, knowledge and relational qualities required in nursing practice.”^{31(p. 4)} Sustainability requires ongoing real-time coaching, case reviews, and education for all nurses and physicians. New nurse employees are introduced to the DASH in general orientation through a simulation video developed in partnership with staff nurses, patient care assistants, clinical experts, and nurse educators. The video has been added to the intranet DASH website and is available for all clinicians for previewing at any time. The DASH guidelines, as well as underlying literature, is available via the institutionwide clinical handbook, which is readily accessible online for all clinical staff. Following introduction during general orientation, unit-based nurse educators provide DASH education at the local level during unit-based orientation.

In addition, a Psychological Nursing Care interest group was initiated, facilitated by the Psychiatric Nursing Resource Service, to develop the skills of nurses with a deeper interest in understanding the psychologically based care of patients and families, and focused initially on the DASH populations. A series of conferences focused on the contemporary psychological care of hospitalized patients and families has been offered quarterly since January 2013, and the Psychiatric Nursing Resource Service offers case conferences regularly at the unit level. A patient and family panel has been included during each conference to learn from those affected by a DASH diagnosis what their experience has been like and how we can improve care. DASH metrics (documentation of the CAM-ICU-modified every eight hours, AUDIT-C admission, and so forth) are reviewed monthly at the ICU committee meetings. The educational brochures were placed in family and patient waiting areas, lounges, and care units.

DASH Patient Impact

Patients admitted to acute care hospitals generally present with acute medical issues, making identification of behavioral health

Brigham and Women's Hospital (BWH) Volume and DASH Volume, Fiscal Years 2010–2013

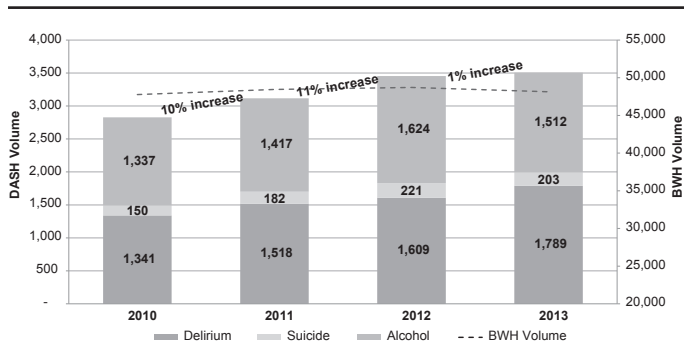


Figure 3. The increase in patients at discharge with delirium, alcohol, or suicide harm was driven mostly by delirium, with an 11% increase from 1,609 to 1,789 discharged patients.

Average Length of Stay (ALOS) by Fiscal Year, 2010–2013*

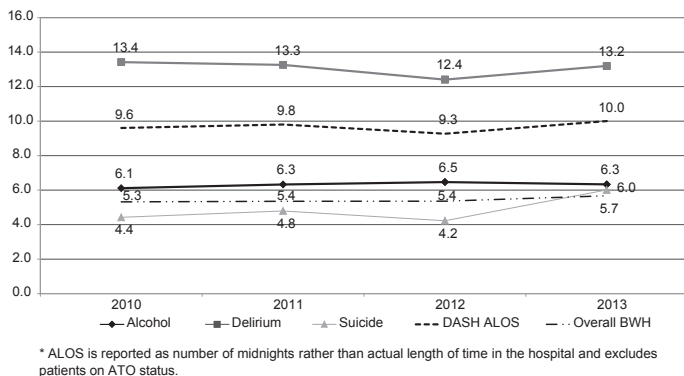


Figure 4. The average length of stay for the hospital and for patients at discharge with a delirium, alcohol abuse, and suicide harm (DASH) diagnosis remained consistent. ATO, admit to observation.

diagnoses more challenging. We used internal billing data and International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnostic codes to identify the DASH population for patients with delirium, alcohol, or suicide diagnosis. We were able to view the DASH population pre- and postprogram implementation for FY 2010 through FY 2013. The data reviewed consisted of the DASH population by volume, average length of stay (ALOS), age, clinical service, discharge disposition, and readmission rates. Patients billed at an inpatient or admit to observation (ATO) status were included. Newborn, neonatal ICU babies, and hospice patients were excluded.

Volume. Although the total DASH population increased by 1% between FY 2012 and FY 2013, the overall BWH population decreased by 1% during that same time period. The increase in patients at discharge with a DASH diagnosis was driven mostly by delirium, with an 11% increase from 1,609 to 1,789 discharged patients; the BWH population with alcohol and suicide decreased (by 7% and 8%, respectively) (Figure 3, left).

Average Length of Stay. ALOS was reported as the number of midnights rather than the actual time in the hospital and excludes patients in ATO status. The ALOS for the hospital and for DASH patients remained consistent (Figure 4, left). The ALOS for the DASH population was 9.3 to 10.0 days and 5.3 to 6.0 days for BWH overall.

Age. The majority of patients (76%) of BWH inpatients were younger than 70 years of age (Figure 5, page 299). The age of the DASH population for alcohol (86%) and suicide (92%) was consistent with the overall BWH population, with the majority being younger than 70. Interestingly, the delirium population was almost equal parts younger than (53%) and older than (43%) 70 years of age.

Clinical Service DASH patients are present on all services throughout the organization. The service with the highest DASH volume at discharge in FY 2013 was General Medicine (32.5%), followed by the medicine subspecialty services of Oncology (15.9%) and Cardiology (7.3%).

Discharge Location The majority of DASH patients were discharged home (51%), and about half who returned home required home care (23%). Some 7% of the DASH patients died while in the hospital, and 4% required hospice care. The remaining 38% were discharged to skilled nursing facilities (18%) or long term care and rehabilitation facilities (12%) or were in the “Other discharge disposition group.” Included in the latter were patients sent to psychiatric hospitals (4%) and patients who left against medical advice (3%) (Figure 6, page 299).

30-Day Readmission Rates. Overall, the DASH readmission rate decreased by 9% from 15.1% in FY 2010 to 13.7%, approaching the overall BWH rate of 13.3% (Figure 7, page 300).

Discussion

An evidence-based DASH program has been developed and implemented, with physicians and nurses having received education, resources, and coaching. We believe that the DASH program has been successful in improving care at BWH. Patient assessments using screening tools (AUDIT-C, suicide questions, and CAM-ICU-Modified) have been standardized. Screening for alcohol use and suicidal ideation occurs on admission, and

screening for delirium occurs throughout the hospitalization. Evidence-based care guidelines have been developed and integrated into practice to assist bedside clinicians with management of alcohol withdrawal, suicidal ideation, and delirium. Clinicians working with these patient populations use the DASH program as part of their everyday work flow. Interprofessional communication of DASH care is present during rounds, huddles, and warm handoffs at shift changes to communicate information about the patient to the oncoming staff.

Physicians and nurses alike have expressed increased confidence in providing care to the patient populations covered by the DASH initiative. Before its advent, discussion on morning rounds regarding a patient with alcohol withdrawal might have involved the resident physician describing the patient as “somewhat anxious,” followed by consideration of whether to alter the dosing of benzodiazepines in that patient. After DASH implementation, the discussion of a patient with alcohol withdrawal entails the nurse’s comparing the latest and previous CIWA-Ar scores, thus providing an objective assessment of the patient’s current degree of alcohol withdrawal and the clinical trajectory of that patient. In addition, with the DASH program, there is an algorithm in place specifying an appropriate dose of lorazepam for the treatment of that patient’s alcohol withdrawal. The use of the DASH order sets (as stated, suicide precautions, 151 times; and alcohol withdrawal, 1,509 times) in a 15-month period of time postimplementation demonstrates knowledge and understanding of the DASH program, including the need to provide evidence-based care for these complex patients.

Physicians and nurses have offered positive feedback of how the DASH program had improved patient care. For example, an oncology RN stated:

I was caring for a 62-year-old woman who had just received information about her terminal cancer. I knew from the DASH training that receiving terminal news and a history of depression could increase safety risk. I asked the standard assessment questions and was very surprised to hear that she was thinking about harming herself. She told me she was planning to overdose on pain medication that she had a stockpile of at home. She said that the clinical news she had received was devastating and that she didn’t see any other way of dealing with the news. If I hadn’t asked the question, I am pretty sure she would not have shared that information with me and would have suffered alone with her unsafe thoughts. I was also relieved to know what to do with the “yes” answer. In following the guidelines, I was able to implement suicide precautions to get her the additional evaluation and ongoing care she would need.

While the improvements in knowledge and standardization of treatment protocols are important effects of the DASH program, changes in the clinical culture of the institution are also a key effect. Some of the DASH diagnoses, such as delirium, had

Group Distribution for DASH Population, Fiscal Year 2013

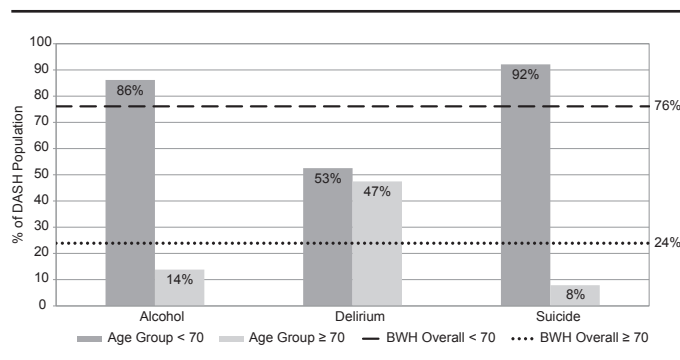


Figure 5. The majority (76%) of Brigham and Women’s Hospital (BWH) inpatients were younger than 70 years of age. DASH, delirium, alcohol abuse, and suicide harm.

Discharge Location for DASH Population, Fiscal Years 2010–2013

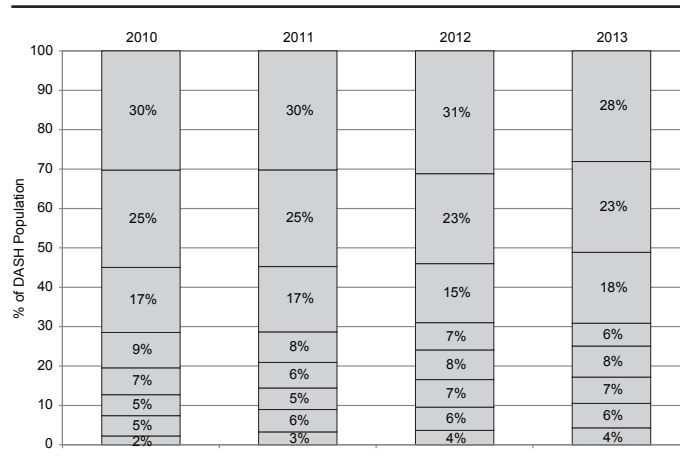
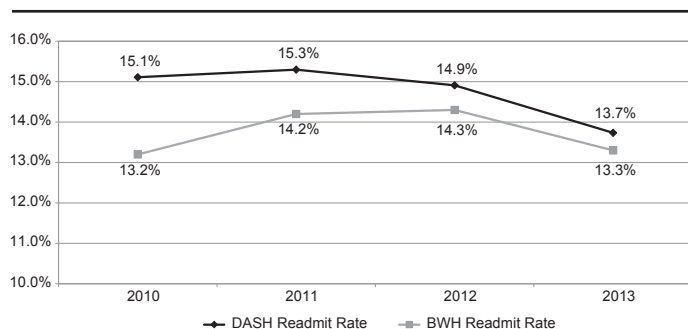


Figure 6. For each fiscal year, the order of the population was as follows: Not Transferred (highest), Home Care, Nursing Home, Long Term Care Facility, Other, Deceased, Rehab Facility, and Hospice (lowest). Included in the “Other discharge disposition group” were patients sent to psychiatric hospitals (4%) and patients who left against medical advice (3%). BWH, Brigham and Women’s Hospital; DASH, delirium, alcohol abuse, and suicide harm.

often been thought of as being primarily the purview of nursing staff or psychiatry. With the implementation of the DASH program, we believe that the clinical culture has changed, such that there is increased understanding that the DASH diagnoses are the concern of all members of the clinical team taking care of the patients with DASH conditions. The standardization of the terminology and emphasis on interprofessional communication that occurred with the DASH program helped bring about this

30-Day Readmission Rate,* Fiscal Years 2010–2013



*BWH defines a readmission as any urgent or emergent admission to BWH within 30 days of original discharge over all Medicine or Surgical discharges. Readmission, however, does not include ATOs or Obstetrics, and deaths are excluded from the denominator.

Figure 7. Overall, the DASH readmission rate decreased by 9% from 15.1% in fiscal year 2010 to 13.7%, approaching the overall BWH rate of 13.3%. BWH, Brigham and Women’s Hospital; DASH, delirium, alcohol abuse, and suicide harm; ATO, admit to observation.

culture change.

We expect DASH to have a positive effect on patient outcomes, in part by promoting earlier recognition of the conditions covered by the DASH program. We believed that early recognition and treatment through standardized assessments, care guidelines, and interventions would not only improve the quality of patient care but help clinicians feel more comfortable treating the conditions covered by the DASH program. We had expected the majority of patients with delirium diagnoses to be older than 70 years of age but, surprisingly, they were just as likely to be younger, supporting the need for routine assessment of all patients regardless of age or care location.

An important ingredient to the success of the DASH implementation was unwavering support from hospital leadership. As executive sponsors of the DASH program, the CNO and CMO helped ensure that department leadership and key stakeholders were receptive to, and supportive of, the DASH program. This in turn allowed the DASH trichairs to enlist champions to support the DASH efforts across the organization. The collaborative nature of the DASH program is one of its defining characteristics.

We used a multicomponent strategy to redesign care for patients at risk for delirium, alcohol, and suicide harm. Best practices, current evidence, and guidelines were utilized to develop the program. Implementation outcomes for acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability were positive. Leveraging electronic options when possible aided dissemination of educational materials, guidelines, and order sets. Streamlining tools into

the current work flow through PDSA cycles and using continuous improvement to update order sets aided implementation. Regarding possible areas for improvement in the implementation phase, we believe developing interprofessional educational sessions could have better harnessed existing infrastructure to disseminate the new information and further the understanding of DASH for all clinicians at the bedside. Most of the education surrounding DASH consisted of nurses educating nurses, and physicians educating physicians. If we had developed interprofessional educational sessions, this may have encouraged greater discussion of the DASH conditions across disciplines. Nonetheless, creating a common terminology regarding the DASH conditions, such as use of the CIWA-Ar scores to capture the severity of alcohol withdrawal symptoms, has encouraged these interprofessional discussions now that the DASH program has been rolled out.

Of course, ongoing monitoring of the use of the DASH components (for example, how often the various order sets are used) is important for assessing the sustainability of the program. We found this to be a challenge, as it requires either existing infrastructure for carrying out this monitoring, or the availability of resources to establish this monitoring infrastructure. Approaching this as a population-based care improvement initiative is recommended because delirium, alcohol withdrawal, and suicidal ideation are usually not the primary diagnoses for which patients are admitted to the hospital.

Education was challenging because different infrastructures existed for physicians and nurses. Although there was substantial institutional experience in the implementation of new programs affecting patient care, the DASH program was different in that the scope was larger and the objective was to simultaneously roll out the program throughout the hospital, among nurses, physicians, and other clinicians using only existing educational resources. Therefore, it was crucial to use the existing infrastructure to the fullest extent possible. In educating nurses about the DASH program, the presence of nurse educators on each unit was particularly valuable, as they helped provide nurses with a deeper understanding of the program and demonstrated how to use the DASH tools. Among physicians, no parallel resources comparable to the nurse educators existed. Thus, physician education regarding the DASH program involved the physician cochairs of the DASH initiative attending multiple existing meetings (for example, prescheduled weekly educational conferences) among different physician groups in the hospital.

For the DASH effort to succeed long term, it will be necessary for it to be embedded in the patient care culture of the hos-

pital. This should happen at the bedside as more seasoned clinicians instruct their more junior colleagues regarding care using the DASH program and explaining that that is the way we care for these patient populations at our hospital. Embedding programs such as DASH into the clinical culture of the hospital may be particularly difficult in academic medical centers, where many of the ordering clinicians are house staff, who may be working at that institution for only a few years. The DASH program must become part of the culture of the hospital for any durable success to come from it because the education programs, as part of its initial rollout, will not remain in place indefinitely.

The development of the alcohol withdrawal order set proved to be a particularly challenging, yet extremely important, part of the DASH program. At the core of this challenge was balancing the goal of making the alcohol withdrawal order set applicable to a wide variety of patients, while also limiting its complexity. Trying to achieve this balance, in response to early feedback, we added an additional option designed for ICU clinicians, providing them greater flexibility in specifying the dosing of benzodiazepines for their ICU patients. In providing education on the alcohol withdrawal order set, we might have done better if we had made it clear from the outset that the order set was not mandatory and that it was meant to apply to most, but not all, patients at risk for alcohol withdrawal. Guidelines are meant to assist clinicians in their care, but clinical judgment is always first and foremost. Some early confusion about these issues led clinicians to alter the order set in ways that it was not designed to be altered so as to try to make it apply to patients who may have been better served by treatment other than what was specified by the order set. Given the fact that there will be particularly complicated or unusual patients who are at risk of alcohol withdrawal, as well as other DASH conditions, we tried to emphasize that there was extensive support in the form of consultative assistance. This consultative assistance included the Psychiatry Consult Service, the Psychiatric Nursing Resource Service, and the Medicine Consult Service.

Conclusion

Hospitals in the United States are increasingly affected by the complexity of care required by medical patients admitted with psychiatric comorbidities. Moreover, with the decrease in inpatient and ambulatory mental health care in the community, patients with primary psychiatric conditions are being seen and cared for with increasing frequency in hospital emergency departments and inpatient care units. It is incumbent on hospitals to develop and use evidence-informed, team-based approaches for the care of patients with the most common of these con-

ditions—including delirium, alcohol withdrawal, and risk of harm to self or others. For programs designed to improve care of patients with a DASH diagnosis to be successful, collaboration among disciplines, support from hospital leadership, establishing baseline measures, and ongoing evaluation of qualitative and quantitative measures are all crucial to success. Given the need to engage multiple disciplines in programs such as these, the scope of such an effort will necessarily be broad. We have described one hospital's efforts to improve the recognition, care, and outcomes of patients with these conditions. The initial effects of the DASH program in enhancing the recognition and management of the conditions covered by the program are encouraging. However, for the program to be considered a true success, the components of the program will need to become embedded in the clinical culture of the institution in a way that achieves sustainability of the program. Successful adoption of the DASH program by other organizations requires strategies for education and implementation aligned with existing processes and resources. ■

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- Appendix 1. Brigham and Women's Hospital Delirium Guideline
- Appendix 2. Brigham and Women's/Faulkner Hospital Alcohol Withdrawal Guideline

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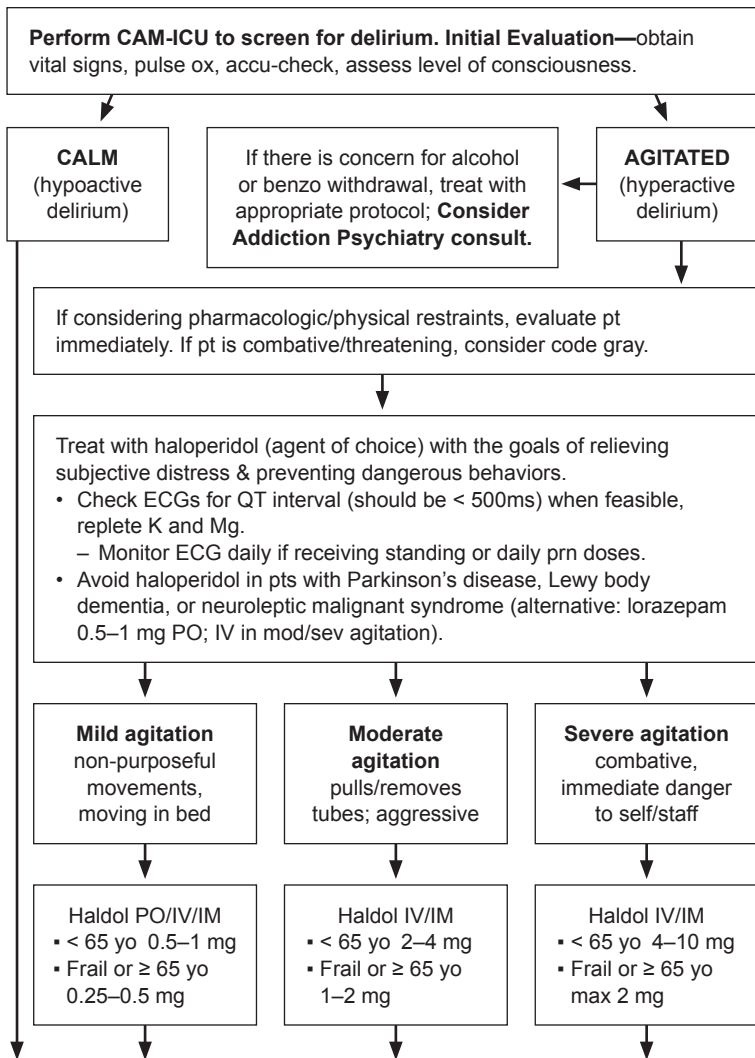
Appendix 1: Brigham and Women's Hospital Delirium Guideline

ETIOLOGIES (commonly identified)

- Drugs/polypharmacy
- Alcohol/drug withdrawal
- Infections/sepsis
- Organ failure:
 - Cardiac, CHF
 - Renal failure
 - Liver failure
 - Stroke, bleed
 - Seizure
- Postoperative
- Hypoxia/hypercarbia
- Hypo/Hyperglycemia
- Electrolyte abnormalities (Na, Ca, Mg, PO₄, K)
- Pain
- Fecal impaction
- Urinary retention
- Sensory deficits—vision, hearing, etc
- Iatrogenesis
 - Immobility
 - Restraints
 - Bladder catheter
 - Dehydration
 - Malnutrition
 - Sleep deprivation

Delirium is a medical urgency, evaluate urgently to avoid adverse outcomes.

MDs/PAs/NPs Algorithm



Nursing Assessment & Interventions

- Evaluate mental status using CAM-ICU-M, if positive alert team and assess for etiology.
 - Obtain vitals, including O₂ sats, blood sugar.
 - Review specific labs: CBC, electrolytes & urinalysis/ culture.
 - Review meds; look for meds that may contribute to confusion; e.g., benzos (ativan, valium) & anticholinergic (reglan, zantac, benadryl, pepcid).
 - Assess & treat pain; monitor effectiveness of pain meds to ensure they are not contributing to delirium.
 - Assess for constipation & urinary retention.
- Provide for physiological needs.
 - Provide a toilet/commode schedule.
 - Monitor intake to prevent dehydration; may require feeding patient.

Agitation

- Use least restrictive measures to provide safety, start with redirection, bed alarm, frequent checks, mitts and lap belts, if indicated.
 - Sitters & restraints agitate patients further; they only provide containment, not treatment for symptoms.
- Use creative interventions; e.g., sleeves to disguise IV tubing, abd. binders for G/J tubes.
 - Avoid use of indwelling catheters, which are a source of infection & trauma from pulling.
- For threatening or combative behavior, assess for prn medications (see MD algorithm).
 - If pt dangerous to self/others, call code gray.
- Avoid bed rest, mobilize as soon as possible to decrease the level of internal agitation.
 - Internal agitation/restlessness are symptoms of delirium; patients have an internal need to move.
 - Avoid restraints or limiting movement as this will increase the level of internal agitation.

Sleep hygiene

- Cluster care while awake to avoid repeated sleep interruptions.
 - Review med times to coincide with vitals/dressings.
 - Minimize disturbances (e.g., decrease noise).
- Minimize daytime sleeping, allow for short naps only.
- Open blinds in day, close at night.
- Use soft lighting at night.

CHF, congestive heart failure; CAM-ICU, Confusion Assessment Method-ICU; ECG, electrocardiography; PO, by mouth; IV, intravenous; IM, intramuscular; CAM-ICU-M, Confusion Assessment Method for the Intensive Care Unit modified for use in all units; CBC, complete blood count; G/J, gastrojejunostomy.

(continued on p. AP2)

Appendix 1: Brigham and Women's Hospital Delirium Guideline (continued)

MDs/PAs/NPs Algorithm	Nursing Assessment & Interventions
<div data-bbox="107 396 833 482" style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Wait 30 min. (peak effect of IV/IM) or 4 hrs after PO dose. Is agitation controlled?</p> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div data-bbox="77 523 323 635" style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Resume evaluation for etiology(ies).</p> </div> <div data-bbox="361 523 833 635" style="border: 1px solid black; padding: 5px; width: 45%;"> <p style="text-align: center;">Double initial dose Warning: Max single dose for < 65 yo is 10 mg, frail or ≥ 65 yo is 2 mg.</p> </div> </div> <div data-bbox="77 670 833 972" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Further evaluation of patient:</p> <ul style="list-style-type: none"> • Focused exam—volume status, cardiopulmonary, skin/wound, abdomen, neuro. • Review medications (especially PRNs)—stop potentially offending and unnecessary medications. • Recent fall history? • Last bowel movement and urinary output. • Consider withdrawal from other maintenance medications that may have been stopped upon or prior to admission (sleep agents, SSRIs, narcotics, other pain medications, antipsychotics). </div> <div data-bbox="77 1009 833 1336" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Order:</p> <ul style="list-style-type: none"> • UA and culture, CBC, Chem 7, Ca, Mg, LFTs, EKG, CXR. <p>Selected labs/studies based on history and exam:</p> <ul style="list-style-type: none"> • Cardiac enzymes, arterial blood gas levels. • <i>Drug levels</i> (e.g., digoxin, lithium, carbamazepine, phenobarb, phenytoin, depakote, tricyclics). • <i>Tox screen</i> if history of drug use. • <i>Head CT</i> if focal neurologic findings or recent fall. • <i>Blood cultures</i> if fever. • <i>EEG/neurology evaluation</i> if concern for seizure. </div> <div data-bbox="77 1373 833 1565" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <ul style="list-style-type: none"> • Identify and treat underlying etiologies. • Prevent complications and provide supportive care: <ul style="list-style-type: none"> – Avoid bed rest, mobilize patient. – Avoid indwelling catheters. – Monitor nutrition status and output. – Institute aspiration precautions. </div> <div data-bbox="77 1602 833 1770" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>If delirium is ongoing and/or patient is failing to respond, consider appropriate consult:</p> <ul style="list-style-type: none"> • Medicine • Geriatrics • Psychiatry </div>	<p>Environmental</p> <ul style="list-style-type: none"> • Provide a clear, safe passage to the bathroom. • Provide clock and calendar in room. • Limit causes of overstimulation: room changes, clutter, people and noise (keep TV off). <ul style="list-style-type: none"> – Don't hold rounds in patient's room. • Institute fall precautions. • Provide as much consistency in staff and routine as possible. • Provide glasses, hearing aids, and dentures to decrease sensory impairment. <p>Communication</p> <ul style="list-style-type: none"> • Approach patient in full view, give a verbal warning before touching patient. • Provide frequent reorientation & reassurance of safety. • Guide patient using one-step directions. • Use redirection instead of limits. <ul style="list-style-type: none"> – If patient is argumentative, remain calm. Do a safety check and if necessary leave room, return in 10 min to try again. Upon return, start over do not remind patient about previous interaction. • Use fewer words, no chitchat. • Provide simple written information and/or signs to patient at bedside (e.g., reminding pt where he is, the date, that family is aware, to use call light and not to get out of bed without assistance). • For hallucinations, reassure patient of safety and that although real to them, you do not see what they see. <p>Family</p> <ul style="list-style-type: none"> • Ask family to describe patient's baseline level of functioning (ADLs and mental status) and document. • Educate family about delirium (provide booklet): <ul style="list-style-type: none"> – Etiologies, management, and waxing/waning course. – How to communicate with patient (quiet environment & regular reassurance). • Encourage family to stay with patient, even at night. • Ask family to bring familiar objects from home (pictures, favorite blanket/pillow). • Refer to social services for support. <p>Resources</p> <ul style="list-style-type: none"> • Nurse manager/educator • Off-shift nurse administrator • Fax referral to Psychiatric Nursing Resource Service
<p>IV, intravenous; IM, intramuscular; PO, by mouth; PRN, as needed; UA, urinalysis; CBC, complete blood count; LFT, lung function test; EKG, electrocardiogram; CXR, chest x-ray; CT, computed tomography; EEG, electroencephalography; ADL, activities of daily living.</p>	

Appendix 2: Brigham and Women's/Faulkner Hospital Alcohol Withdrawal Guideline

AUDIT-C: Ask the patient

(If patient is unable to communicate & other clinical indicators suggest recent alcohol use, institute **Fixed-Dose Regimen**)

Questions	0	1	2	3	4
1) How often did you have a drink containing alcohol in the past year?	Never	Monthly or less	2–4 times a month	2–3 times a week	4 or more times a week
2) How many drinks did you have on a typical drinking day in the past year?	0 to 2	3 or 4	5 or 6	7 to 9	10 or more
3) How often did you have 6 or more drinks on one occasion in the past year?	Never	Less than Monthly	Monthly	Weekly	Daily or almost daily

Negative

STOP
but
continue
to monitor

Total Score: _____ Positive Negative
Positive: Either a) Total score ≥ 4 (for men) or ≥ 3 (for women)

- 1) Thiamine 100 mg PO/IV Daily x 5 doses (administer thiamine prior to glucose)
- 2) Folic acid 1 mg PO Daily x 5 doses
- 3) MVI PO Daily x 5 doses

Institute CIWA-Ar protocol (Symptom-Triggered Regimen)

- Use caution in interpreting CIWA-Ar scores with patients age < 18, history of sedative/hypnotic abuse, toxic alcohol level, clonidine or beta-blockers.
- CIWA-Ar is contraindicated in the following situations:
 - Patient is unable to communicate.
 - Patient is already in severe alcohol withdrawal.
 - Patient has delirium (see BWH Delirium Guideline).
- Consider using **Fixed-Dose Regimen** in patients with prior history of delirium tremens or alcohol withdrawal seizures.

Score is 0–8

- No medication needed.
- Continue administering CIWA-Ar q4 hours.
- **STOP** CIWA-Ar after 6 consecutive scores < 8.

Score is 9–15

- Give the following:
 - a) Lorazepam 2 mg PO/IV
- Continue administering CIWA-Ar q4 hours.
- If no improvement in CIWA-Ar scores after 2 consecutive dosing or worsening of symptoms:
 - a) Notify MD.
 - b) Reassess diagnosis.
 - c) Consider Psychiatry consultation (x26701).
- **STOP** CIWA-Ar after 6 consecutive scores < 8.

Score is ≥ 16

- **STOP** CIWA-Ar, institute **Fixed-Dose Regimen**.

Institute Fixed-Dose Regimen when CIWA-Ar is contraindicated

- Give one of the following **x 24 hours:**
 - a) Lorazepam 2 mg PO/IV
 - b) Diazepam 10 mg PO/IV
 - c) Chlordiazepoxide 25 mg PO
- Interval:
 - a) q1 if suspect severe alcohol withdrawal.
 - b) q4 if prophylaxis in a noncommunicative patient.
- **Hold dose** if:
 - a) patient exhibits NO signs of alcohol withdrawal (e.g., stable vital signs, no evidence of tremors and agitation).
 - b) acute onset of benzodiazepine intoxication (e.g., sedation, nystagmus, ataxia, slurred speech, disinhibition, delirium)
- Continue to administer medications x 24 hrs.
- Use additional PRNs of the same benzodiazepine if needed.
- If no improvement after 2 consecutive dosing or worsening of symptoms:
 - a) Notify MD.
 - b) Reassess diagnosis.
 - c) Consider Psychiatry consultation (x26701).
- **Standing Taper** (initiate taper once symptoms of withdrawal have stabilized for 24 hours):
 - a) Calculate total 24-hour dose; **Taper** by 20%–25% per day.
 - b) **Hold dose** if patient appears sedated/benzo intoxicated.
 - c) Use additional PRNs if needed.

AUDIT-C, Alcohol Use Disorders Identification Test; PO, by mouth; IV, intravenous; MVI PO, daily by mouth; CIWA-Ar, Clinical Insitute Withdrawal Assessment of Alcohol Scale; BWH, Brigham and Women's Hospital; q, every; PRN, as needed.