



Articles

Nurses' Knowledge, Confidence, Detection and Actions Related to Delirium Care in the Post-Acute Setting

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Delirium Communications

Background

Delirium is a common and under-recognized condition affecting patients during times of illness or injury and is associated with poor short and long-term outcomes. Although primarily considered a complication during hospitalization, delirium can persist, recur, or initially present during a post-acute stay in a skilled nursing facility. Little is known about delirium care knowledge, confidence, and practices by nurses in post-acute facilities.

Objectives

Measure post-acute care nurses' knowledge and confidence levels related to delirium prevention, identification and management

Describe post-acute care nurses' documented assessments and actions related to delirious patients.

Methods

Nursing knowledge and confidence data was obtained from a query of 114 nurses working in three post-acute facilities. Documentation of nursing assessment and actions were analyzed from records of 22 patients determined to have experienced post-acute delirium using CHART-DEL methodology.

Results

Nurses averaged 75% correct on a written delirium knowledge test, with most deficits in identifying the key features of delirium and the assessment of delirium superimposed upon dementia. Most (89%) nurses accurately applied the Confusion Assessment Method Short Form to a video of an individual displaying hypoactive delirium with visual hallucinations, while only 49% did the same with the video depicting hypoactive delirium superimposed on mild cognitive impairment. The majority (85%) of nurses reported lack of confidence in performing delirium screening, specifically surrounding the identification of an acute change in mental status from baseline and the presence of inattention and 56% lacked confidence discussing results of a positive delirium screen with a provider. The term "confusion" was the most documented descriptor in records of patients experiencing delirium with nurses recognizing 40% of verified delirious cases and acting upon 83% of cases they recognized.

Conclusion

Nurses working in the post-acute care setting displayed gaps in knowledge, confidence and skills related to delirium prevention, assessment and management.

INTRODUCTION

Delirium is an under-detected serious and common complication of illness or injury affecting up to 25% of hospitalised adults and associated with short- and long-term negative consequences, including increased morbidity, mortality, cognitive impairment and functional decline.¹

Up to 39 % of hospitalised patients experiencing delirium remain delirious at time of hospital discharge, necessitating transfer to a post-acute facility for extended care.²⁻⁴ Shorter hospital stays and higher acuity levels at discharge have contributed to this trend.^{5,6} Older persons admitted to post-acute facilities with unresolved hospital delirium have a greater risk of experiencing complications, re-hospitali-

sation and death compared to those who do not have delirium.^{7,8}

Up to 25% of patients admitted to a post-acute care unit experience either a lingering or new-onset delirium.^{7,9,10} Post-acute delirium may persist, with the majority of cases remaining after one month follow up and is associated with complications, re-hospitalisation and death.¹¹⁻¹⁴ Staff members' failure to recognise delirium, address the underlying aetiology, and implement supportive measures can increase the severity and duration of the delirium and the related adverse outcomes.¹⁵

Nurses play a vital role in detecting, managing, and preventing delirium. Studies have found that delirium is under-recognised by nurses in acute care settings,^{16,17} but this has not been studied in the post-acute setting.

The aims of this study included:

1. Describe nursing knowledge and confidence levels related to delirium detection and intervention
2. Describe nursing documentation in records of persons with delirium.
3. Compare nurse-identified cases of delirium with another standardised measure.
4. Describe nursing action taken in identified cases of delirium

METHODS

This study took place at three skilled nursing facilities within a healthcare network. The post-acute units within each of these facilities admitted hospitalised patients in need of ongoing care before a transition to home or long-term care. Descriptive data were gathered from a questionnaire completed by willing nurses and a review of documentation found in health records of a random sample of discharged patients. This study proposal was approved by the Institutional Review Board, which waived written consent from both the nurses and patients.

NURSING KNOWLEDGE AND CONFIDENCE ASSESSMENT

All 120 employed nurses in three post-acute care facilities were invited to participate in an assessment which involved completing (1) a demographic instrument reporting years of experience as a nurse, age, ethnicity, and recent formal delirium education (2) a ten-question multiple-choice delirium knowledge test (3) the scoring of two videos of delirious patients using a validated delirium assessment tool, The Confusion Assessment Method (CAM) short form,¹⁸ and (4) a five-point Likert scale questionnaire indicating confidence in screening for delirium and notifying a provider of a positive delirium result (see supplemental materials). This assessment was designed by study team members, reviewed by two delirium content experts and pilot-tested with several nurses to improve content validity. The involvement of experts and practising nurses with advanced knowledge in delirium helped identify essential topics to include in assessing knowledge and confidence surrounding delirium care.

PATIENT MEDICAL RECORD REVIEW

A retrospective review of paper and electronic health records of 99 randomly chosen discharged patients was conducted in three post-acute care environments (n = 33 records per facility). This number of records was based on power calculations (effect size of 0.34 using 2 degrees of freedom Chi-Square test with a significance level of 0.025) for a future study to detect a change in nurses' delirium detection rates from baseline following an educational intervention.

Eligibility criteria included records of any discharged patients who spent at least 72 hours on the participating post-acute unit within the past six months. The records were picked randomly by a medical records specialist at each facility. A group of research interns conducted the initial record review for each of the 99 charts. This included the collection of basic demographics, admission diagnosis, discharge destination, history of cognitive impairment (dementia or delirium) and complications (falls, skin breakdown, aspiration pneumonia, emergency department visit or hospital re-admission) occurring during the post-acute stay.

The investigators next determined which patients in the sample experienced delirium during their post-acute stay using a validated chart-based delirium identification instrument known as CHART-DEL.¹⁹ This tool uses Confusion Assessment Method criteria and has 79% sensitivity, 83% specificity and a likelihood ratio of 4.4 for identifying delirium. Any record found to contain trigger words or phrases that raise the suspicion of delirium, such as *mental status change, disorientation, hallucinations, agitation, confusion, lethargy* was referred to two delirium experts for further review using the CHART-DEL Instrument. In cases of disagreement between the delirium experts regarding the presence or absence of evidence supporting a delirium diagnosis, the adjudication process detailed in the CHART-DEL manual was followed to establish consensus.

Any record identified as positive for delirium was further reviewed to collect all terminology documented by inter-professional team members to describe the patient's mental state or behaviour and determine if the clinical staff correctly identified delirium. Correct identification of delirium by clinical staff consisted of using the term delirium or other terminology to describe and recognise an acute change in the patient's baseline cognitive function. An example of a correct identification is a patient with baseline dementia whose admission documentation states, *disoriented to situation* and day 3 documentation states *Patient is more confused than usual*. An incorrect or missed identification of delirium in a baseline cognitively intact patient may be documentation stating *Patient is confused* without recognising this as a change from baseline. The discipline to first mention the qualifying terminology for delirium in their note was labelled the discipline responsible for correct identification.

Actions taken by nurses in response to a recognised delirium were categorised as appropriate vs inappropriate. Appropriate actions were consistent with published best

practices to address the aetiology of delirium or mitigate the adverse outcomes associated with delirium. Inappropriate actions included a failure or a delay to act consistent with published delirium care guidelines.²⁰

RESULTS

DELIRIUM PREVALENCE

Twenty-two (22%) of the 99 records reviewed via CHART-DEL methods met criteria for delirium. The delirium prevalence for the three post-acute facilities ranged from 12-39%. Eleven (50%) of the 22 records contained documentation supporting a delirium diagnosis within 24 hours of admission to the post-acute unit. Six (54%) of those eleven patients were noted on the hospital discharge summary to have experienced delirium during the hospitalisation. Of the remaining eleven patients who were determined to have experienced incident delirium later than 24 hours after admission to the post-acute facility, eight developed it within the first week and three during weeks 2-4.

FACTORS ASSOCIATED WITH DELIRIUM

In this study, the age range of delirious patients was 65-98 with the average age of 85.4 years. Nineteen of the 22 (86%) records identified as delirium-positive represented Caucasians and 12 of the 22 (55%) were women. Nine of the 22 (41%) had a diagnosis of dementia, seven of the 22 (31%) had a history of delirium, and four of the 22 (18%) had both dementia and a history of delirium.

Figure 1 compares pre-existing cognitive conditions (prior delirium and dementia) and new-onset negative outcomes (falls, skin breakdown, re-hospitalisation and death) between delirious and delirium-free patients. Dementia was significantly more common ($p < .001$) in patients who experienced delirium during the post-acute stay compared to those who remained delirium-free. Delirious patients were re-hospitalised more often ($p < .001$) than those without delirium. Although not reaching statistical significance, trends showed a prior episode of delirium to be associated with a post-acute delirium occurrence. Falls, skin breakdown and death were more prevalent among patients experiencing delirium during their post-acute stay than among those patients who remained delirium-free.

NURSES' KNOWLEDGE OF DELIRIUM PREVENTION, SCREENING AND MANAGEMENT

114 of the 120 invited nurses from the three post-acute units participated in the delirium knowledge survey. The nurses were primarily Caucasian women with reported ages spanning five decades [ages 21-30 (19%); ages 31-40 (20%); ages 41-50: (25%); ages 51-60 (25%); ages 61+ (11%)]. A slight majority (53%) graduated from an associate degree program, while the others held bachelor's (35%) or graduate degrees (12%) in nursing. Few (5%) reported receiving any formal education on delirium outside the work setting within the past three months, such as attending a conference or reading a publication. The average score on the

knowledge test was 75% correct. Errors were primarily related to the definition and features of delirium, and the identification of delirium superimposed upon dementia. Video #1 (hypoactive delirium with visual hallucinations) was scored correctly as CAM-positive by 89% of the nurses. Video #2: (hypoactive delirium superimposed upon mild cognitive impairment) was scored correctly as CAM positive by 49% of the nurses, with 38% incorrectly scoring the CAM as negative and 13% scoring the CAM as *unable to assess*. (supplemental materials)

NURSES' CONFIDENCE IN DELIRIUM SCREENING AND NOTIFICATION OF PROVIDER

Most (85%) of the nurse participants indicated a total or substantial lack of confidence in screening for delirium. They reported the least confidence in assessing for the *acute onset/change from baseline* and *inattention* features of delirium and 56% indicated little or no confidence in reporting abnormal findings to the provider. (supplemental materials)

TERMINOLOGY USED IN NURSES' DOCUMENTATION

The most common term found in the nursing documentation associated with delirium was *confusion*, followed by *restless* and *forgetful* (Table 1). The term *delirium* was found in only two records, documented by a geriatrician and a psychiatrist but never by the nurse. In six of the 15 (40%) delirium-positive records, nurses cited families as the first party to raise concerns about the patient's confusion, forgetfulness, memory issues and changing or worsening mental status. Families used descriptors such as *not himself* or *different from normal* to describe their delirious loved ones.

RECOGNITION OF DELIRIUM

Fewer than half (45%) of the 22 patients whose CHART-DEL review suggested behaviours consistent with delirium were identified correctly as delirious by any clinical staff. Table 1 further describes correct and missed delirium identification by discipline. Nursing documentation was the source of delirium determination by experts using CHART-DEL in 15 of the 22 cases of positive delirium. Nurses correctly identified 6/15 (40%) but missed 9/15 (60%) of these delirious cases. Providers, which included physicians and advanced practice providers, documented terminology consistent with delirium in three records, but only identified two of the three patients (67%) as experiencing delirium. Similarly, the rehabilitation professionals, physical and occupational therapists, provided the initial documentation of delirium in three records, but only identified two of the three patients (67%) as experiencing delirium. A social worker provided the documentation in one case but did not recognise it as delirium.

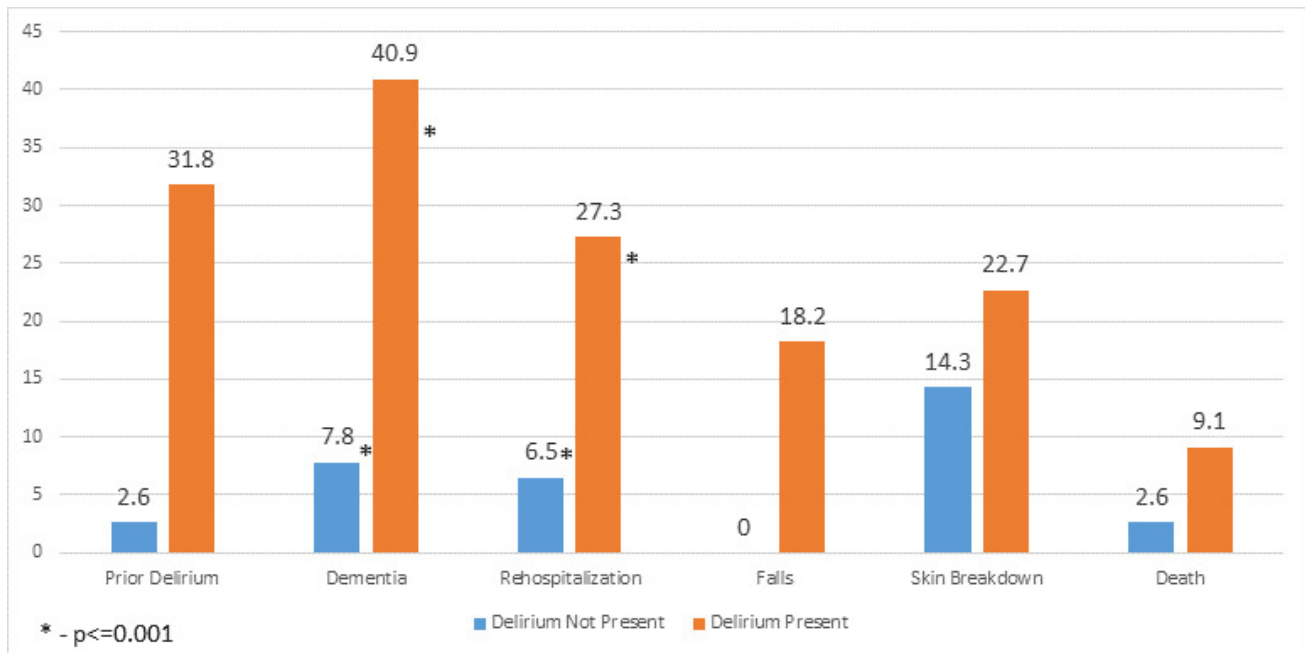


Figure 1. Comparing Delirium Positive vs Negative Cases for Pre-disposing Factors and Resulting Complications (%)

NURSING ACTIONS

Of the six cases in which nurses identified a new delirium, some action was taken by the nurse in five of the six instances (83%) (Table 2). As a result, one patient was sent to the hospital (who did die) and another had a potentially deliriogenic medication discontinued. In four instances, protocols for urinary assessment and management were implemented. In the one case involving an inappropriate response by the nurse, more than 24 hours passed before the provider was notified. This delayed the ordering of diagnostics to determine the aetiology of delirium. In addition, a potentially inappropriate medication (lorazepam) was administered to the patient.

DISCUSSION

This study found an overall delirium prevalence of 22% in the sample, consistent with published studies.⁹ Known risk factors for delirium, including advanced age,^{13,21} pre-existing dementia and history of delirium^{22,23} were also found in our study population who experienced delirium. In addition, negative consequences associated with delirium, specifically falls, skin breakdown, re-hospitalisation and mortality, occurred more often in delirious compared to delirium-free patients in our study. This justifies the need to focus on delirium care programs across the care continuum, not just acute care settings. It also suggests that routine daily delirium screening in post-acute settings may be targeted to those at highest risk, such as age > 80, and those with a pre-existing cognitive impairment or history of delirium.

Nurses in this sample displayed some basic knowledge of delirium symptoms, risk factors, etiologies and interven-

tions as measured by an average score of 75% on a 10-item written multiple-choice test. The item with the lowest score involved the assessment of delirium superimposed upon dementia (DSD). When presented with a video of two individuals displaying hypoactive delirium features, one with hallucinations and one with a more subtle presentation superimposed on a pre-existing mild cognitive impairment, nurses had the most difficulty identifying delirium in the second case. These findings are consistent with others who found that DSD increases the complexity of delirium recognition among nurses.¹⁷

This study revealed a discrepancy between test scores and actual clinical performance among nurses regarding delirium care. Similar to findings that providers and nurses under-recognise delirium in the acute care setting,^{16,17,24} this study demonstrated more than half of delirium episodes occurring during a post-acute stay were not recognised as such by clinical staff. More specifically, in 60% of the cases, nurses failed to acknowledge their documented signs and symptoms of delirium to be an acute change in condition in the patient that required further action. Most nurses (85%) did report a lack of confidence in screening for and identifying delirium. These gaps in knowledge, confidence and practice may be attributed to a generalised lack of appreciation by staff and administration regarding the importance of prompt and accurate delirium detection and efforts to discern the underlying cause(s) while implementing evidence-based mitigation strategies. This speaks to the need for additional education and structured delirium screening for clinical staff surrounding delirium recognition. Raising awareness of both clinical staff and organisational leaders of the prevalence and negative consequences associated with the under-recognition of post-acute delirium may overcome some barriers to making delirium care a priority.²⁴

Terminology	Nurses	Providers	Rehab	Social Work	Family	Total
Confusion	6		1		2	9
Forgetful	2		1	1	2	6
Restless	3					3
Agitation	1	1				2
Delirious		2				2
Not himself/herself	1				1	2
Different from normal					1	1
Not following directions				1		1
Lethargic	1					1
Worsening mental status					1	1
Change in mental status					1	1
Disorientation			1			1
Anxious	1					1
Resistive		1				1
Inattentive		1				1
Memory issues					1	1
Unresponsive	1					1
Cases of Confirmed Delirium	15	3	3	1		22
Cases Correctly Identified by Staff	6 (40%)	2 (67%)	2 (67%)	0 (0%)		10 (45%)
Cases Not Recognized by Staff	9 (60%)	1 (33%)	1 (33%)	1 (100%)		12 (55%)

Table 1. Documented Symptom Terminology and Source

Recognition of delirium signs and symptoms was first raised by a family member in six (27%) of the cases in this study. Including the family in identifying delirium and administering care interventions has been shown to be feasible, acceptable and effective in improving delirium detection and family empowerment.²⁵⁻²⁸

Confusion was the term most often documented (40% of the cases) in the record when describing delirium and

the term *delirium* was documented twice, both by physicians. This is similar to the findings of another study which examined words documented by clinical staff to describe delirium in the post-acute setting.²⁹ The use of a formal delirium screening instrument, such as the Confusion Assessment Method, may help to standardise and promote the use of the term *delirium* when it is present.

Case #	Appropriate Actions	Inappropriate Actions
1	Updated provider resulting in: -Urine Culture -Discontinuation of Tramadol	
2	Updated provider resulting in: -Patient sent to Emergency Department of hospital	
3, 5 & 6	Collected Urine C&S per nursing protocol	
4		Delay in notifying provider Delay in drawing labs Patient given Lorazepam

Table 2. Actions Taken By Nurses in Response to a Recognised Acute Mental Status Change

Nurses took some timely action in the majority (83%) of the cases in which they recognised an acute change in mental status occurring. These actions included notifying the provider and/or implementing nursing protocols surrounding urinary assessment and management. Nurses immediately notified the provider of the delirious change in condition in only two of the six recognised cases. A more inclusive protocol for suspected delirium may address a broader range of nursing interventions that support prompt notification of the provider, exploration of the aetiology of delirium and interprofessional actions to prevent harm and excess disability that often accompany delirium.

There are several limitations to this study. This study involved patients and staff at three post-acute units within one New England state health system, which may not be generalisable to all post-acute units. The 99 charts reviewed for data collection may not have been adequate to accurately identify a representative population of delirious patients at each facility. The tools to assess nurses' knowledge and confidence levels were designed by the study team and, although reviewed by experts for content validity, may not have measured knowledge and confidence accurately or completely. Although the experts used a validated process to determine the presence of delirium, it was done by retrospective chart review and based on data available through

staff documentation. Therefore, some errors related to delirium detection and assignment may have occurred.

CONCLUSION

Nurses working in the post-acute care setting displayed gaps in knowledge, confidence and skills related to delirium prevention, assessment and management. This study also provided additional documentation of the presence of delirium and related negative consequences among patients receiving post-acute care in a skilled nursing facility. The findings support the need for staff education and the implementation of a formal delirium screening process, which should include the family of patients at high risk for or experiencing delirium. Prospective studies comparing delirium assessments by experts and staff in the post-acute setting are needed to further describe the issue and guide recommendations for improvement.

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AUTHOR CONTRIBUTIONS

Conceptualisation and methodology CW, JC, TN, SG
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Interpretation JK,JC,TN,SG,CW
Writing- original draft preparation JK, CW
Revising and editing JK,JC,TN,SG,CW

ETHICS STATEMENT

This study protocol was reviewed and approved by the Hartford Healthcare IRB.

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DECLARATION OF INTERESTS

None of the authors declare any conflicts of interest

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SUPPLEMENTARY MATERIALS

Delirium Care Confidence Questions with Nurse Responses

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