Assessment, Prevention and Management of Delirium in the Intensive Care Unit

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Case Reports

Background

The Rabindranath Tagore Hospital (Narayana Health), a 608-bed, JCI and NABH-accredited quaternary care facility in Kolkata, has been providing multi-specialty services since 2000. Delirium is a common and serious complication characterized by fluctuating consciousness, acute disturbance in attention and awareness, often accompanied by changes in cognition and perception, affecting approximately 20 to 50% of hospitalized patients with less severe illness in general and about 50% to 80% of mechanically ventilated patients in particular. Delirium has significant consequences, including prolonged hospital stays, increased reliance on mechanical ventilation, and higher rates of complications. These acute impacts translate into substantial healthcare costs. Moreover, the long-term effects of delirium are profound, potentially leading to persistent cognitive decline, reduced independence, increased mortality, and an elevated risk of developing dementia. Delirium in hospitalized patients significantly increases the risk of sentinel events, such as falls and medication errors. Despite its prevalence and severe consequences, delirium is often under-recognized and undertreated in ICU settings. Recognizing this critical issue, the Society of Critical Care Medicine (SCCM) has identified delirium as a key quality metric in intensive care.

In order to address this critical concern, the RT Hospital's critical care team has developed a delirium prevention and management protocol to address the common issue of under-recognition, misdiagnosis, and oversight of delirium by healthcare professionals across all critical care units.

Distinctiveness of practice

RT Hospital's distinctive approach to delirium management and prevention included a structured framework encompassing monitoring, prevention, and therapy, focusing on mitigating modifiable risk factors. This approach prioritized following:

- Comprehensive Risk Mitigation by focusing on modifiable risk factors, including pain, sedation, and sleep disturbances.

- Daily screening using a structured tool, Confusion Assessment Method for the ICU (CAM-ICU), enabled early detection of both hyperactive and hypoactive delirium, facilitated timely intervention.

- Multidisciplinary collaboration through coordination between ICU physicians, nurses, physical therapists, and families ensured comprehensive and timely care delivery.

- Continuous improvement by regular audits of delirium incidence and risk factors informed refinement in intervention.

- Emphasized prevention by incorporating the ABCDEF bundle with a focus on reorientation techniques, cognitive stimulation, sleep promotion, and active family involvement.

- Tailored training programmes ensured all

staff were proficient in delirium protocols, pain management, and sedation practices.

Measuring effects

This practice mitigated preventable risks, ensuring better recovery and reduced complications. To assess the program's impact, outcomes were benchmarked against pre-implementation data from a retrospective audit of 887 patients (April to December 2023).

- The standardized use of the CAM-ICU tool resulted in a significant improvement in delirium detection and management compared to the pre-implementation period.

- The mandatory implementation of the CAM-ICU protocol ensured uniformity in delirium assessment, reducing variability in diagnosis and enhancing reliability.

- The hospital's approach aligns with evidence-based international standards, such as the SCCM's ABCDEF bundle, further establishing the program's credibility and effectiveness.

Measuring Parameters	Pre	Post
Number of patient Audited	887	269
Number of patients who developed Delirium	9	12
Percentage of Delirium seen in ICU patients	1.01%	4.46%
Type of delirium	All Hyperactive	Hyperactive. 5 Hypoactive. 3 Mixed. 4
Compliance of Physician consultants for monitoring and documenting Delirium with the CAM-ICU scoring tool	Not monitored	(357/ 866) = 41.22%
Compliance of nursing staff for monitoring and documenting Delirium with the CAM-ICU scoring tool	Not monitored	(1945/2008) = 96.86%
Number of de-lining incident related delirium	(7/9) = 78%	(2/12) = 16.66%

Fig. 1 Pre- & Post-improvement chart

Notable change observed were:

- A retrospective audit conducted in the adult cardiac surgical unit post-implementation revealed a notable reduction in the incidence of delirium, including both hyperactive and hypoactive presentations.

- The average duration of delirium episodes significantly decreased, with most cases resolving within 24 hours.

- Accidental device removal rates, often linked to delirium-related agitation, saw a marked decline.

- Both ICU and overall hospital length of stay showed reduction.

- Patients responded positively to active assessments and engagement through the delirium questionnaire. Many appreciated the opportunity to communicate in their preferred language, fostering a sense of involvement in their care.

- Continuous training initiatives further reinforced adherence to the standard practices and enhanced staff confidence.

- A dedicated CAM-ICU documentation sheet for nurses and a designated section for physicians for progress notes improved the accuracy and reliability of delirium-related records.

- Reduced workload by preventing complications associated with untreated delirium, such as extended ventilation or

- physical restraints.
- Strengthened teamwork and coordination through a multidisciplinary approach involving nurses, physicians, and therapists.
- Improved ICU quality metrics and patient safety outcomes, enhancing the hospital's reputation.
- Reduced costs to healthcare organizations related to litigation arising from adverse events.

Challenges encountered

- Challenges in diagnosis of delirium due to fluctuating symptoms and overlapping presentation with other conditions led to frequent under-diagnosis. The CAM-ICU screening tool was introduced, enabling structured and routine assessments by trained staff. Training sessions emphasized recognizing both hyperactive and hypoactive delirium.
- Absence of clear guidelines for pain, sedation, and delirium management created inconsistencies in care delivery. Evidence-based protocols were developed and implemented using team consensus and the Delphi method. These protocols incorporated the ABCDEF bundle, ensuring a holistic approach to delirium management.
- Resistance from staff due to entrenched practices and lack of familiarity with the new protocols. Continuous engagement through training, awareness campaigns, and inclusion of staff in protocol development fostered ownership and buy-in. Early adopters were identified to champion the change and influence peers.

By benchmarking against prior data and established standards, the hospital has developed new critical care excellence, ensuring sustainable and scalable practices for delirium prevention and management.

Lessons Learned

Implementation of a delirium management programme yielded valuable insights.

- Structured pain, sedation, and delirium protocols, developed through the Delphi method to ensure team consensus, proved essential.
- Embedding CAM-ICU scoring into sedation and analgesia checklists streamlined the screening process and improved compliance. Additionally, the creation of a dedicated documentation sheet for nurses and a section in physicians' progress notes facilitated accurate record-keeping.
- Comprehensive, multi-tiered training for nurses and physicians, encompassing theoretical knowledge, practical sessions, and evaluations, significantly improved staff competence.
- The hospital adopted a structured and integrated approach, aligning with hospital policies and workflows in order to ensure long-term sustainability of the delirium management programme.
- Daily patient screening using a structured tool until ICU discharge facilitated early detection and intervention.
- Regular audits identified challenges, tracked progress, and informed iterative improvements in practices and protocols. Sharing audit findings with staff reinforced accountability and motivated adherence.
- Awareness campaigns and the inclusion of staff in protocol development fostered a culture of collaboration. Nurse champions played a pivotal role in addressing on-ground challenges and maintaining momentum for the change.

Sustainability of Practice

The hospital implemented a structured framework for delirium monitoring, prevention, and therapy, focusing on mitigating modifiable risk factors and addressing underlying somatic issues contributing to delirium.

- Stakeholder collaboration and consensus-building remain essential alignment across all levels, fostering shared ownership and embedding the program into hospital-wide policies.

- Standardized pain, sedation, and delirium protocols were developed through the Delphi method and team consensus, embedded into daily workflows, and periodically reviewed to align with best practices.

- Regular continuing nursing education sessions were conducted in small groups for ICU nurses, with mandatory participation and post-training assessments to ensure competency. Similar training was provided to ICU consultants to foster multidisciplinary buy-in and consistent practice. To sustain motivation, staff who completed the training received certificates of appreciation displayed publicly in the ICU.

- A robust documentation strategy, including dedicated delirium documentation sheets for nurses and designated sections in-patient progress notes for physicians, reinforced compliance.

- Replication in different contexts may require protocol customization based on patient population, resources, and workflows; tailoring training programmes to address specific staff needs and potentially incorporating local language and cultural relevance; ensuring adequate resource allocation for implementation; and actively engaging all stakeholders to build consensus and support.

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1 Target Population

ICU patients, particularly high-risk groups such as elderly patients and those undergoing cardiac surgery, along with ICU healthcare providers.

2 Phenomenon of Interest

Implementation of a structured delirium assessment, prevention, and management protocol using the CAM-ICU tool and multidisciplinary interventions to reduce incidence, complications, and hospital stays.

3 Context

Rabindranath Tagore Hospital (Narayana Health), a 608-bed JCI and NABH-accredited quaternary care hospital in Kolkata, integrated evidence-based delirium management protocols, improving early detection, patient outcomes, and ICU efficiency.

Conclusion

Benchmarking against prior data and established standards, the hospital has developed new critical care excellence, ensuring sustainable and scalable practices for delirium prevention and management.

Key Findings

1 Significant Reduction in Delirium Incidence and Duration

Implementation of the CAM-ICU tool and ABCDEF bundle led to earlier detection, shorter delirium episodes, and improved patient recovery times.

2 Enhanced Documentation and Multidisciplinary Coordination

A dedicated CAM-ICU documentation sheet for nurses and physician progress notes improved accuracy, while team-based care strengthened ICU workflows and patient outcomes.

3 Improved ICU Quality Metrics and Cost Efficiency

The initiative reduced ICU length of stay, accidental device removals, and sedation-related complications, ultimately lowering healthcare costs and improving patient safety.