SUN DOWNING:

DOES EXTRA LIGHT MAKE A DIFFERENCE ?

SUNDOWNING:

Does Extra Light Make a Difference?

ANCC Accredited NCPD Hours: 1.5 hrs

Target Audience: RN/APRN

NEED ASSESSMENT

Delirium and dementia are among the most prevalent causes of cognitive impairment in older populations, yet their interrelationship remains complex and not fully understood. Research consistently identifies dementia as the leading risk factor for delirium, while delirium itself is recognized as an independent risk factor for the subsequent development or acceleration of dementia. A critical area of debate revolves around whether delirium merely signifies an underlying vulnerability to dementia, whether its effects are solely attributed to precipitating factors, or whether delirium actively contributes to long-term neuronal damage and cognitive decline. Evidence from epidemiological, clinicopathological, neuroimaging, biomarker, and experimental studies highlights shared and distinct pathological mechanisms linking these conditions. Given the potential for delirium to serve as an early marker of neurodegeneration, comprehensive assessment tools and early detection strategies are crucial. Implementing routine cognitive evaluations, using validated delirium screening tools, and monitoring high-risk individuals can facilitate timely interventions. Proactive assessment allows for the development of targeted preventive and therapeutic approaches, which may help preserve cognitive function, delay the progression of dementia, and ultimately improve the quality of life for aging individuals.

OBJECTIVES

- Describe the general aspects of delirium and dementia.
- Analyze the prevalence of delirium and dementia in general hospital settings and their impact on patient outcomes.
- Understand the pathophysiological theories.
- Examine the occurrence and burden of dementia in acute care environments, emphasizing challenges in management and care.
- Assess the severity and adverse clinical outcomes associated with delirium and dementia in acute care settings, including prolonged hospitalization, functional decline, and increased mortality.
- Explore the intricate relationship between delirium and dementia, highlighting shared risk factors, pathophysiological mechanisms, and long-term cognitive consequences.
- Emphasize accurately distinguishing delirium from dementia to facilitate appropriate diagnosis, timely intervention, and optimize patient care.

GOALS

The primary goal of this article is to underscore the significance of accurately identifying and effectively managing delirium and dementia in acute care settings. This includes a comprehensive discussion of the latest evidence-based strategies for early identification of high-risk patients, prompt intervention to mitigate adverse outcomes, and tailored support approaches to enhance patient recovery and overall clinical outcomes. By integrating current research and best practices, this article aims to improve awareness, guide clinical decision-making, and promote high-quality care for individuals affected by delirium and dementia.

INTRODUCTION

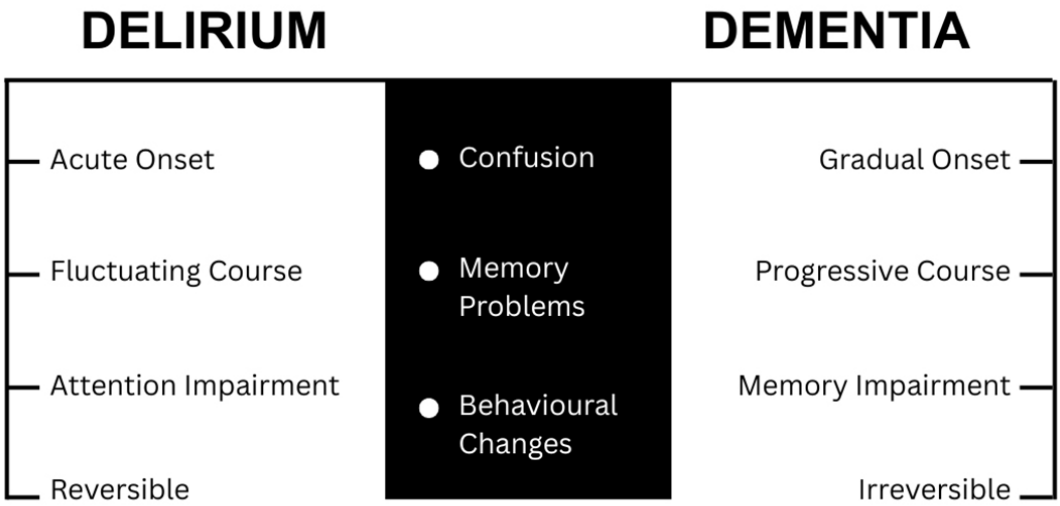
With the unprecedented increase in the proportion of individuals over the age of 75 in most industrialized countries, cognitive impairment has become a pressing clinical concern. This demographic shift necessitates a proactive and effective approach to the recognition, differentiation, and management of cognitive disorders, particularly delirium and dementia. Despite their high prevalence in clinical settings, these conditions are frequently misdiagnosed or mistaken for one another, leading to suboptimal care and adverse outcomes.

Dementia is a progressive neurodegenerative condition marked by a persistent decline in cognitive function that interferes with daily living and independence. In contrast, delirium is an acute, often transient syndrome characterized by fluctuating disturbances in attention, awareness, and cognition. It is typically triggered by underlying medical conditions or multifactorial aetiologies and is associated with increased morbidity and mortality. Notably, delirium affects up to 50% of hospitalized elderly patients and remains preventable in approximately 30–40% of cases through timely interventions and risk management strategies.

The coexistence of delirium and dementia is common, with pre-existing dementia serving as a primary risk factor for delirium. While both conditions are intricately linked, their precise interrelationship is still under investigation. Emerging research suggests that shared pathophysiological mechanisms, including cholinergic deficiency, neuroinflammation, and impaired cerebral oxidative metabolism, contribute to both syndromes. Gaining deeper insights into this interface may pave the way for improved diagnostic frameworks and targeted therapeutic interventions aimed at mitigating cognitive decline and enhancing patient outcomes. [1, Rank 5]

GENERAL ASPECTS OF DELIRIUM AND DEMENTIA

Delirium Vs. Dementia: Overview

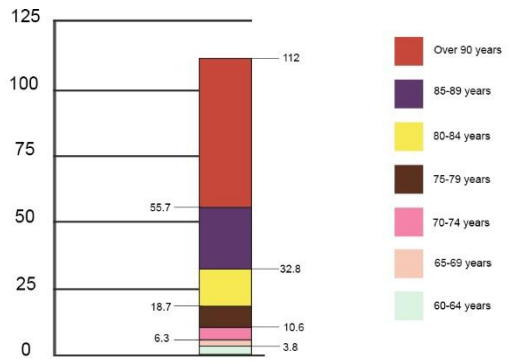


Delirium is an acute, reversible neurocognitive disorder characterized by a sudden onset of confusion, impaired attention, and fluctuating levels of consciousness. It is often triggered by underlying medical conditions such as infections, metabolic imbalances, medication side effects, or substance withdrawal. Symptoms include disorganized thinking, hallucinations, agitation, and sleep disturbances. Diagnosis is based on clinical assessment using tools like the Confusion Assessment Method (CAM). Treatment focuses on identifying and addressing the underlying cause, ensuring patient safety, and providing supportive care, including reorientation and environmental modifications.

Dementia is a chronic, progressive neurodegenerative disorder marked by a gradual decline in cognitive function, including memory loss, impaired reasoning, and behavioural changes. It is most commonly caused by Alzheimer's disease but can also result from vascular damage, Lewy body disease, or other neurological conditions. Unlike delirium, dementia progresses over time and is irreversible. Diagnosis involves cognitive assessments (e.g., MMSE, MoCA) and brain imaging. Management includes medications like cholinesterase inhibitors (Donepezil) and NMDA receptor antagonists (Memantine) to slow progression, along with behavioral interventions and caregiver support.

PREVALENCE OF DEMENTIA AND DELIRIUM IN GENERAL HOSPITALS

Dementia is highly prevalent among hospitalized patients, affecting approximately **one in four** individuals admitted to acute care settings. Additionally, **6% of people living with dementia** are inpatients at any given time. Despite its frequency, dementia often goes **unrecognized by healthcare professionals**, leading to missed or delayed diagnoses. Compounding this challenge, delirium frequently coexists with dementia, further complicating clinical management. Both dementia and delirium are **cognitive disorders** associated with significant **adverse health outcomes**, including prolonged hospital stays, increased complications, and higher mortality rates. These conditions are intricately linked, as dementia increases the risk of developing delirium, while episodes of delirium can accelerate cognitive decline in individuals with dementia.



Estimated dementia incidence rate among older people in the United States as of 2015, by

DID YOU KNOW?

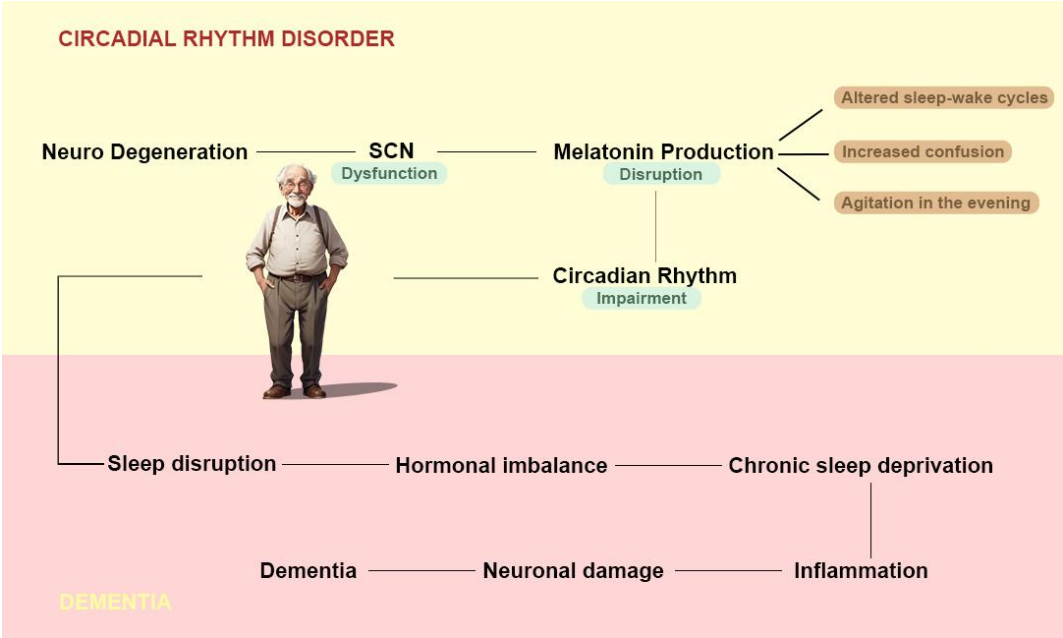
- Dementia accounts for more years of disability than any other condition.
- Cases of dementia are expected to double by 2030.
- Dementia increases rapidly with age. 10% of deaths in men aged over 65 years and 15% in women aged over 65 years are attributable to dementia
- Nationally only 1 in 3 people with dementia ever receive a formal diagnosis or have contact with specialist services at any time in their illness
- 2 in 3 people with dementia are cared for in the community, mostly by unpaid carers; the rest live in care homes...
- There is a shortage of good quality dementia nursing care locally.

Effective **assessment, management, and follow-up** of older adults with cognitive impairment in hospital settings are crucial for improving patient outcomes. However, diagnosing dementia and delirium remains challenging due to overlapping symptoms, and treatment options are limited. Despite these challenges, **timely interventions, appropriate management strategies, and improved healthcare awareness** can enhance patient care and mitigate negative outcomes. [2, Rank 4]

PATHOPHYSIOLOGICAL THEORIES

Several hypotheses explain the underlying mechanisms of sundowning, including:

1. **Circadian Rhythm Dysregulation:**
   - The suprachiasmatic nucleus (SCN), which is responsible for regulating circadian rhythms, becomes dysfunctional in dementia due to neurodegeneration.
   - As a result, there is a **disruption in melatonin production**, leading to altered sleep-wake cycles and increased confusion and agitation in the evening.
   - Patients may struggle to distinguish day from night, contributing to restlessness and sleep disturbances.

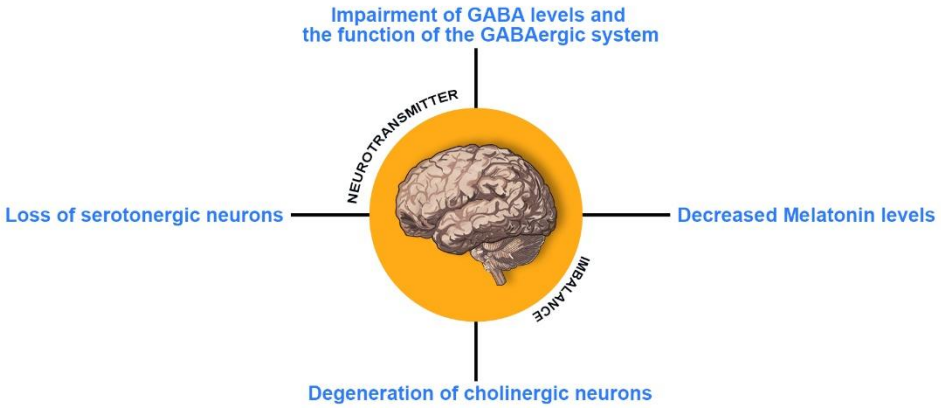


2. **Neurotransmitter Imbalance:**

- Dementia-related neurodegeneration affects key neurotransmitters such as **serotonin, melatonin, acetylcholine, and gamma-aminobutyric acid (GABA).**
- **Decreased melatonin levels** contribute to poor sleep quality and heightened agitation.
- **Serotonin depletion** can lead to mood instability, aggression, and anxiety, which are common features of sundowning.
- Acetylcholine deficits further impair cognitive function, worsening confusion and disorientation during evening hours.

Accumulated Fatigue Theory:

- Patients with dementia often experience **cognitive overload** throughout the day due to their struggle with processing information and navigating their environment.
- By the evening, **mental exhaustion** leads to increased irritability, confusion, and restlessness.
- Fatigue-related distress may be exacerbated by an inability to effectively communicate discomfort or needs.

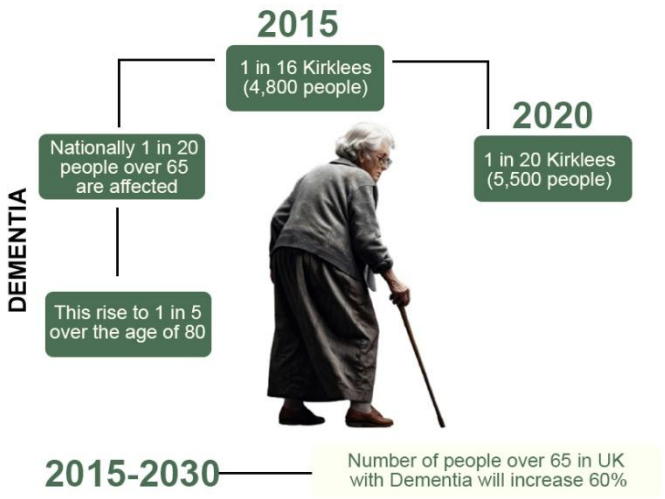


Sensory Overload or Deprivation:

- Inappropriate **environmental stimuli** play a crucial role in triggering sundowning symptoms.
- Excessive noise, bright lights, or chaotic surroundings can overwhelm a patient's limited cognitive capacity, leading to agitation.
- Conversely, **poor lighting, shadows, and isolation** can cause misinterpretations of the environment, triggering fear, hallucinations, and anxiety.

OCCURRENCE AND BURDEN OF DEMENTIA IN ACUTE CARE ENVIRONMENTS

Prevalence of Dementia in Acute Care Settings



- The prevalence of dementia in hospital settings varies widely across studies, with estimates ranging between **15% and 42%**. To contextualize this, considering that two-thirds of hospital bed days are occupied by individuals aged **65 years and older**, approximately **25% of patients in general hospitals** are likely to have dementia. However, reported prevalence rates differ based on ascertainment methods and whether studies distinguish between **dementia and delirium.**
- Patients with **dementia and cognitive impairment** are often hospitalized due to acute crises, commonly presenting with **immobility, falls, pain, or breathlessness**. Compared to those without dementia, hospitalized individuals with dementia tend to be **4 to 7 years older**, predominantly **female**, and more likely to **reside in care homes**. Additionally, **three-quarters of hospitalized patients with dementia** meet the criteria for **frailty**, compared to just **one-quarter** of their counterparts without dementia.

Dr. Greg Scott, a neurologist at Imperial College London's UK Dementia Research Institute, is developing a new way to quickly diagnose delirium using artificial intelligence (AI) and electroencephalogram (EEG) technology.

Delirium is often mistaken for dementia and affects about 20% of hospitalized adults. Dr. Scott's method includes a wearable EEG device that detects delirium by analyzing brainwave patterns, allowing for faster and more accurate treatment.

- Despite the high prevalence of dementia in acute care, **56% of cases remain undiagnosed or unrecognized** by healthcare professionals. Among older patients with delirium, only **36% of those with dementia** have a formally recognized diagnosis. Applying these figures to a **typical 500-bed general hospital**, at any given time, there may be at least **70 inpatients with undiagnosed dementia**.
- This highlights the critical need for **improved screening, early identification, and tailored management strategies** to enhance the quality of care for hospitalized patients with dementia. [3, Rank 3]

PREVALANCE RATES	
DELIRIUM	**DEMENTIA**
○ General Population (65+ years): 1-2% ○ Population aged 85+ years: 10% ○ Hospitalized Adults (65+ years): More than 20% ○ Long-term Care: 1.4% to 70% depending on the population and diagnostic criteria	○ Global Prevalence: Over 55 million people worldwide ○ Prevalence in Hospitalized Adults with Delirium: Delirium superimposed on dementia occurs in about 7.9% of hospital admissions ○ Delirium Superimposed on Dementia (DSD): 31% to 48.9% in hospitalized patients with dementia

Severity and Adverse Outcomes of Delirium and Dementia in Acute Care Settings

Hospitalized individuals with dementia typically present with more advanced disease compared to those in community settings. Approximately 46% of hospitalized dementia patients are classified at Functional Assessment Staging Scale (FAST) stage 6 or higher, indicating severe functional impairment, including muteness, immobility, and incontinence. Moreover, 75% of these patients exhibit behavioural and psychological symptoms of dementia (BPSDs), with 43% displaying symptoms that pose significant challenges to healthcare staff. These rates are markedly higher than those observed in community-dwelling dementia patients, contributing to a diminished quality of life during hospitalization.

In acute care settings, BPSDs are frequently managed with pharmacological interventions, including antipsychotic medications and benzodiazepines, despite their association with a nearly threefold increase in hospital mortality. Additionally, dementia in hospitalized patients correlates with a higher incidence of inpatient adverse events, particularly mortality, falls, and delirium, leading to escalated healthcare costs. Studies indicate a 31% mortality rate at six months and 40% at twelve months, with a significant rise in care-home placements at one year. Notably, 24% of patients require institutionalization for the first time, while 42% experience hospital readmissions within a year. [13, Rank 2]

The poor outcomes associated with dementia in hospitals may be partially preventable and often stem from inadequate care provision rather than the disease itself. Hospital staff frequently face difficulties in addressing the complex needs of these patients, leading to suboptimal care and negative perceptions of dementia in healthcare settings. Additionally, iatrogenic and environmental factors within hospitals may exacerbate functional and cognitive decline. Emerging research suggests that acute inflammatory events may act as catalysts for accelerated deterioration in this vulnerable population. Given these risks, hospital care for dementia patients should be considered a key quality indicator, emphasizing the need for tailored interventions and improved clinical practices to enhance patient outcomes. [4, Rank 2]

THE IMPORTANCE OF DISTINGUISHING DELIRIUM FROM DEMENTIA

Distinguishing between delirium and dementia is crucial because their evaluation and clinical management are different. While these conditions have been traditionally viewed as distinct, real-world diagnosis can be challenging due to overlapping symptoms.

Why It Matters

- Proper diagnosis ensures appropriate treatment and management.
- Delirium is often **reversible**, while dementia is **progressive and irreversible**.
- Misdiagnosing one for the other can lead to inadequate care.

FEATURES	DELIRIUM	DEMENTIA
Onset	Sudden	Gradual
Course	Fluctuating	Progressive
Attention	Impaired	Relatively preserved in early stages
Reversibility	Often reversible	Generally irreversible
Underlying Cause	Often a treatable condition	Typically a neurodegenerative disease

Challenges in Diagnosis

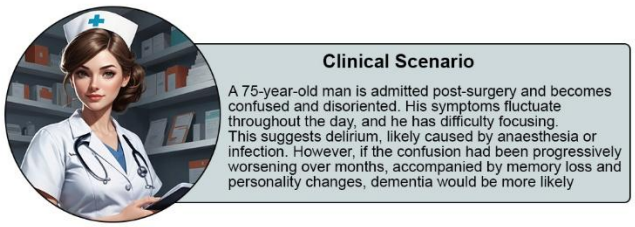
- **Persistent delirium and reversible dementia** blur the boundaries between these conditions, making differentiation difficult.
- **Fluctuating symptom presentation**: Delirium symptoms may persist for months, while early dementia may present with episodic confusion.
- **Shared risk factors**: Both conditions can be seen in older adults, and certain medical conditions (e.g., metabolic imbalances,

infections, medication side effects) can mimic or contribute to both.

- **Atypical presentations**: Patients with pre-existing dementia may develop superimposed delirium, further complicating the clinical picture.
- **Assessment challenges**: Diagnosis often depends on **caregiver observations, detailed history-taking, and longitudinal follow-up** to distinguish between acute versus chronic cognitive impairment.

Best Clinical Approach

- **Focus on onset:** A sudden change in cognition over hours to days suggests delirium, whereas slow, insidious decline over months to years suggests dementia.
- **Assess attention and awareness**: If a patient exhibits fluctuating attention, impaired focus, or disorganized thinking, delirium is more likely. Dementia patients generally maintain stable attention in early stages.
- **Evaluate level of consciousness**: Delirium often presents with altered consciousness, whereas dementia patients remain alert until late-stage disease.
- **Identify reversibility:** If symptoms improve after treating an underlying cause (e.g., infection, medication withdrawal), it confirms delirium. Dementia, on the other hand, is progressive and irreversible.
- **Consider the presence of hallucinations**: While both conditions may involve hallucinations, delirium often presents with visual hallucinations and misperceptions, whereas dementia (especially Lewy body dementia) may feature well-formed, recurrent hallucinations.
- **Use diagnostic tools:** Instruments like the Confusion Assessment Method (CAM) for delirium and Mini-Mental State Examination (MMSE) or Montreal Cognitive Assessment (MoCA) for dementia can aid diagnosis



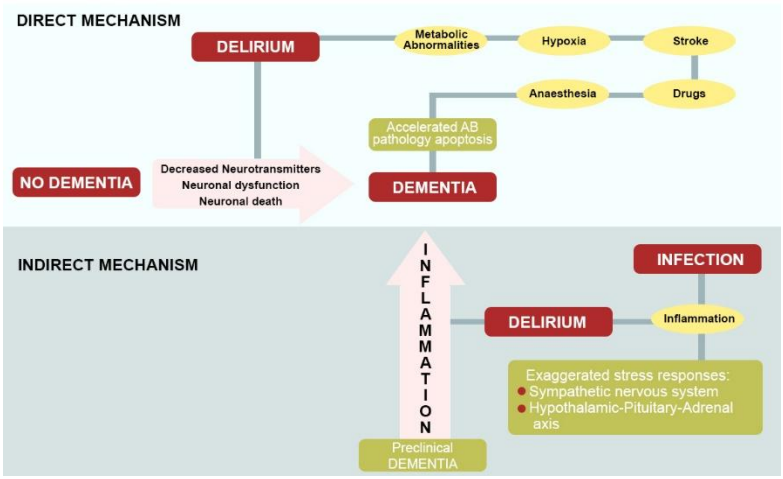
Distinguishing delirium from dementia is essential for appropriate intervention. Since delirium is potentially reversible, **clinicians should always assume delirium in cases of uncertainty and investigate reversible causes** before diagnosing dementia. Early and accurate identification leads to better patient outcomes and targeted treatment strategies. [5, Rank 3]

THE RELATIONSHIP BETWEEN DELIRIUM AND DEMENTIA

A major area of controversy is whether delirium is simply a **marker of vulnerability to dementia**, whether it **unmasks pre-existing but unrecognized dementia**, whether its impact is solely due to precipitating factors, or whether delirium itself can **cause permanent neuronal damage leading to dementia**.

Potential Mechanisms Linking Delirium to Dementia

1. **Neurotoxicity** – Medications (e.g., anaesthetics, anticholinergics), infections, or metabolic disturbances may exert toxic effects on neurons.
2. **Inflammation** – Systemic inflammation (e.g., sepsis, endotoxins) may lead to chronic neuroinflammation, increasing dementia risk.
3. **Chronic Stress** – Repeated stress responses can accelerate cognitive decline and contribute to neurodegeneration.
4. **Neuronal Damage** – Conditions such as prolonged ischemia, hypoglycaemia, or shock can cause permanent neuronal injury.
5. **Acceleration of Dementia Pathology** – Delirium may accelerate the accumulation of **beta-amyloid (Aβ) and tau proteins**, which are key markers of Alzheimer's disease.
6. **Diminished Cognitive Reserve** – Frequent episodes of delirium may deplete the brain's ability to compensate for damage, hastening dementia onset.



Clinical Implications of Delirium

Delirium has been associated with various **adverse neurological and systemic effects** that may exacerbate cognitive impairment:

1. **Lethargy and Psychomotor Retardation**
   - **Immobility-related complications**, including **aspiration pneumonia, respiratory compromise, dehydration, and malnutrition**
   - Increased risk of **pressure ulcers, urinary tract infections, deep venous thrombosis, and pulmonary embolism**
2. **Psychomotor Agitation and Unsafe Behaviours**
   - Increased incidence of **falls and injuries**
   - Heightened reliance on **antipsychotics, sedative medications, and physical restraints**, which may contribute to further cognitive and functional decline.

Thus, delirium may initiate a **cascade of physiological stressors** that negatively affect brain health and cognitive function.

The Impact of Delirium in Older People with Dementia

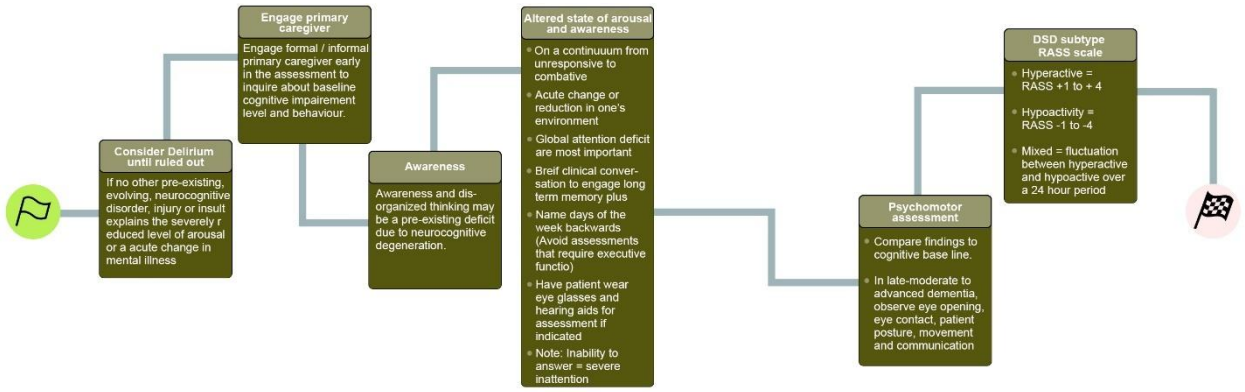
Delirium is an acute, severe neuropsychiatric syndrome that predominantly affects older individuals in hospital settings. It is associated with increased morbidity and mortality, often complicating the management of pre-existing cognitive impairments. Dementia is the strongest known risk factor for developing delirium, with delirium superimposed on dementia accounting for approximately 65% of delirium cases in hospital settings. The presence of delirium exacerbates the progression of dementia and serves as a risk factor for the subsequent onset of dementia. Studies indicate that only 19% of individuals who experience delirium remain free from cognitive deficits three months post-episode. Among hospitalized patients, those with both dementia and delirium have the poorest clinical outcomes.

Delirium Superimposed on Dementia

Diagnosing confusion in older adults presents a significant clinical challenge, as it requires distinguishing between delirium, dementia, or the coexistence of both conditions. Additionally, persistent delirium can occur, further complicating diagnosis and management. Delirium in individuals with dementia is particularly prone to being unrecognized, leading to suboptimal treatment and increased adverse outcomes.

There is a pressing need for fundamental research to better characterize these conditions both biologically and clinically to enhance diagnostic accuracy and patient care. While no universally accepted diagnostic criteria exist for delirium superimposed on dementia, structured clinical assessments and standardized protocols can aid in its accurate identification and management.

Given the intricate relationship between dementia and delirium in acute hospital settings, effective recognition, investigation, and management strategies must consider both conditions simultaneously. Additionally, healthcare policies should integrate comprehensive approaches that address the interplay between dementia and delirium to improve patient outcomes and reduce healthcare burden.

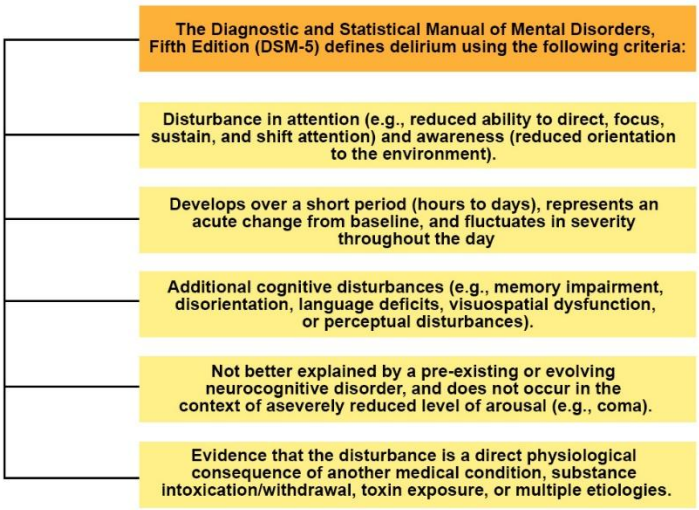


Pathophysiological links between delirium and dementia. There is significant clinical and pathophysiological overlap between delirium and dementia, particularly in the advanced stages of dementia. Delirium and dementia share many common risk factors and are major risk factors for each other. Exposure to delirium increases the risk of future dementia. Dementia, in turn, increases the risk of developing delirium but also increases exposure to precipitants that cause delirium.

There is evidence of neuronal injury during delirium, however, the mechanisms by which this occurs remain unclear. Several hypothesized aberrant pathways may contribute to the development of delirium and dementia. These pathways interact with each other. In delirium, it is likely the impact of each pathway will vary for individual patients depending on baseline vulnerabilities and the type of delirium precipitant. [6, Rank 3]

Diagnosing Delirium in Individuals with Dementia: Challenges and Best Practices

Accurately diagnosing **delirium in individuals with pre-existing dementia** presents a significant clinical challenge due to the **overlapping symptomatology** of both conditions. While delirium is an **acute neuropsychiatric syndrome** characterized by **fluctuating cognition, inattention, and altered levels of consciousness**, dementia is a **progressive neurodegenerative disorder** that gradually impairs cognitive function. The presence of dementia increases the risk of delirium, yet distinguishing between the two requires a **systematic and multi-dimensional approach**.



Challenges in Diagnosing Delirium in Dementia

The diagnosis of delirium in individuals with dementia is particularly complex due to **shared clinical features andconfounding factors**. Four primary challenges complicate differentiation:

1. **Dementia with Lewy Bodies (DLB): A Diagnostic Dilemma**

- **DLB accounts for ~4% of all dementia cases** and is characterized by:
  - **Fluctuating cognitive function**
  - **Attentional deficits**
  - **Visual hallucinations**
  - **Paranoid delusions**
- The **episodic fluctuations in cognition and alertness** seen in DLB often mimic **persistent delirium**, leading to diagnostic uncertainty.

2. Environmental and Sleep-Related Factors in Hospitalized Patients

- **Hospitalization, sleep deprivation, and sensory overstimulation** frequently cause:
  - **Daytime somnolence**
  - **Increased irritability**
  - **Agitation and behavioral disturbances**
- These factors can **exacerbate pre-existing cognitive impairments** in dementia patients, further complicating diagnostic clarity.

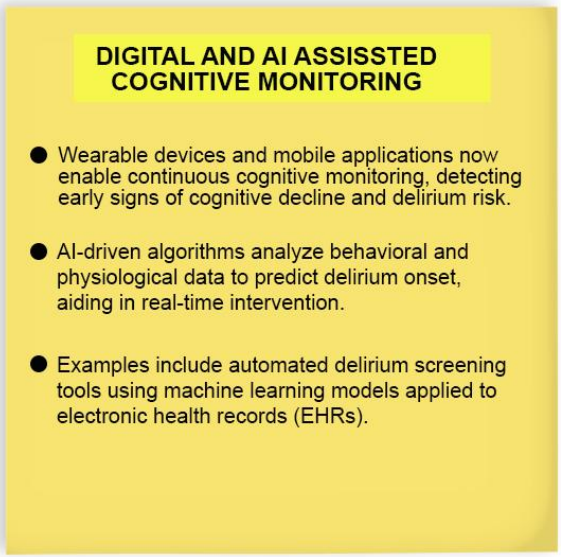
3. Sudden Deterioration in Vascular Dementia

- Unlike **Alzheimer's disease**, which progresses gradually, **vascular dementia** can present with **sudden cognitive decline**, closely resembling delirium.
- Distinguishing between **an acute stroke-related cognitive decline and delirium** requires **neuroimaging and vascular assessment**.

4. Behavioural and Psychological Symptoms of Dementia (BPSDs)

- **Up to 75% of hospitalized dementia patients** experience **BPSDs**, including:
  - **Hallucinations**
  - **Agitation and aggression**
  - **Disorientation and altered arousal**
- These symptoms **overlap significantly with delirium**, leading to **frequent misdiagnosis or delayed recognition**.

Diagnosing delirium in individuals with dementia requires **clinical expertise, structured cognitive assessments, and careful consideration of fluctuating symptoms**. Adopting a **systematic and multidisciplinary approach** ensures timely recognition, improves patient outcomes, and prevents long-term cognitive deterioration. [8, Rank 4]



MANAGEMENT OF DEMENTIA IN ACUTE CARE SETTINGS: EVIDENCE-BASED APPROACHES

The management of **individuals with dementia in acute care settings** presents significant challenges, as dementia is frequently associated with **negative patient and caregiver experiences, functional decline, and increased healthcare burden**. Despite the **limited research** on optimal care models, emerging evidence suggests that **multidisciplinary interventions, person-centered care, and proactive strategies** can improve outcomes.

Optimizing Care for People with Dementia in Hospitals

1. **Comprehensive Geriatric Assessment (CGA) and Functional Mobility**

- **CGA has demonstrated effectiveness in improving mobility and reducing complications** in older adults with **hip fractures and dementia**.
- A structured **multidisciplinary assessment**, incorporating **medical, functional,**

psychological, and social domains, allows for individualized care planning and rehabilitation.

2. Fall and Delirium Prevention Strategies

- **In-hospital fall prevention programs** significantly reduce the incidence of falls, including in patients with cognitive impairment.
- **Delirium prevention strategies**, such as **early mobilization, hydration, medication review, sensory aids (glasses, hearing aids), and cognitive stimulation**, have been shown to **reduce both delirium onset and fall risk**.
- Although research on **delirium prevention specifically in dementia patients is limited**, it is reasonable to assume that **general preventive measures extend to this population**.

3. Nutritional Support and Discharge Planning

- Evidence guiding **nutritional interventions** in dementia patients is **scarce**, yet **malnutrition is a common issue** that impacts recovery.
- **Early discharge planning** is essential to prevent **inappropriate institutionalization** and support **home-based care** where feasible.
- **Family involvement in discharge planning** is crucial to facilitate smooth transitions and **improve post-discharge monitoring of delirium and cognitive function**.

4. Role of Specialist Units and Multidisciplinary Care

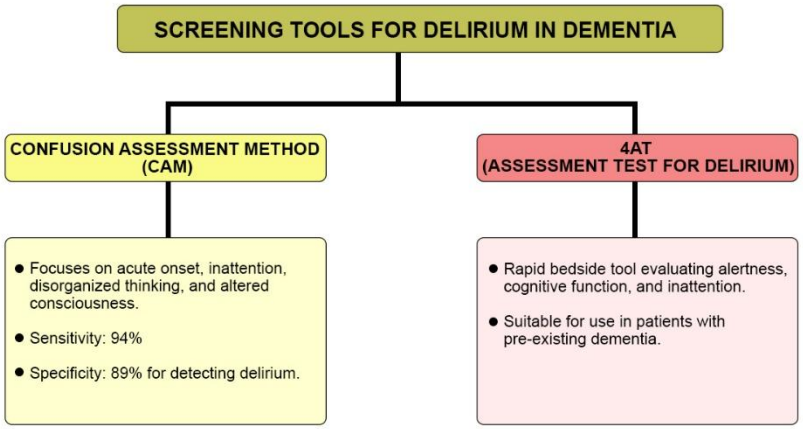
- **Integrated geriatric-psychiatric units** may **reduce hospital length of stay and readmission rates**.
- A **randomized controlled trial** of a **specialist hospital unit for older adults with confusion** found no reduction in length of stay or institutionalization but showed:
  - **Improved caregiver satisfaction**
  - **Enhanced quality of care interactions**
  - **Cost-effectiveness**
- These findings suggest that **care quality and experience can be enhanced through specialized services, even in the absence of significant outcome changes**.

A Shift Towards Need-Driven Management

The traditional approach to managing cognitive impairment in hospitalized patients involves **differentiating between delirium and dementia**. However, **a case can be made for recognizing these conditions as a complex, overlapping syndrome**, necessitating a **need-driven rather than diagnosis-driven approach**.

Key Aspects of Need-Driven Management

1. **Assume delirium unless proven otherwise** and provide **supportive care** tailored to cognitive impairment.
2. **Detailed symptom characterization** should be prioritized over **strict diagnostic categorization** in acute care settings.
3. **Comprehensive geriatric assessment** should guide management, ensuring care plans **address functional needs rather than focusing solely on diagnosis.**



THE IMPACT OF DELIRIUM IN ACUTE CARE SETTINGS

Delirium is a prevalent and **clinically significant condition** in hospitalized patients, particularly in **older adults** and individuals with **severe medical conditions**. The incidence and prevalence of delirium vary depending on **patient demographics**, **underlying illnesses**, and **hospital settings**.

- **Prevalence on admission:** In older patients, delirium affects **14% to 24%** at the time of hospital admission.
- **Incidence during hospitalization:** The risk of developing delirium ranges from **6% to 56%** during the hospital stay.

- **General hospital setting:** Delirium occurs in **15% to 30%** of hospitalized patients.
- **Geriatric populations:** Among the hospitalized elderly, the incidence ranges from **10% to 40%**.
- **Cancer patients:** Delirium is observed in **57% to 85%** of individuals with cancer.
- **Terminal illness:** The prevalence can be as high as **85%** in palliative care settings.

Beyond its **acute presentation**, delirium has **long-term consequences**, including **poor functional recovery, increased morbidity and mortality, and prolonged hospitalization**.

Persistence of Delirium and Long-Term Outcomes

Emerging evidence challenges the traditional view of delirium as a **transient** condition. Research indicates that **persistent delirium symptoms** can last for **three to six months post-discharge** and, in some cases, even longer. Several studies have documented that **persistent delirium significantly impacts functional recovery, mortality, and overall prognosis**.

- **Delirium lasting less than two weeks** is generally associated with **excellent functional recovery**.
- **Prolonged delirium (>6 months)** is linked to **higher morbidity and mortality**.
- **Greater severity of delirium episodes** correlates with **worse outcomes**, including increased risk of **functional decline, institutionalization, and death**.

Given its **high prevalence, complex etiology, and long-term consequences**, delirium management in acute care settings requires **early detection, targeted interventions, and long-term follow-up** to minimize adverse outcomes.

ASSESSMENT OF DELIRIUM AND DEMENTIA IN ACUTE CARE SETTINGS

Under-detection of delirium is well documented: at least two-thirds of cases are missed. Older age, the presence of comorbid neuropsychiatric disorders, prominent pain and hypoactive presentation contribute to decreased recognition. Diagnosis is also hindered by confusing nomenclature, with many terms describing acute brain disturbance in use in different populations and treatment settings. The use of 'delirium' as an umbrella term is important in engaging and educating colleagues throughout the healthcare spectrum .

A second barrier to delirium assessment is the wide variety of detection tools available. This reflects the clinical heterogeneity of the condition and the varying skills of assessors with identification of some delirium through observed behaviours, and in other cases by detailed cognitive assessment requiring more expertise. While the agitated patient is easily identified, the more common presentation of hypoactive delirium is frequently missed. For this reason, regular mental status assessment needs to become a 'vital sign' embedded into basic hospital care. [14, Rank 4]

Specialist delirium assessment tools and investigations may be appropriate in a minority of patients with delirium where the precipitant is unclear or the clinical course unusual. The Memorial Delirium Assessment Scale, Delirium Rating Scale–Revised–98 and Cognitive Test for Delirium enable detailed assessment to detect delirium in cases involving related neuropsychiatric conditions.

Future developments in objective assessment of attention, and more detailed assessment of the level of consciousness may assist delirium detection.

Neuroimaging is routinely used in clinical practice to exclude primary neurological causes of delirium such as stroke, haemorrhage and tumours. Yet the evidence base informing decisions on neuroimaging in delirium is very small. This matters not only because of possibly inappropriate use of resources, but also because CT scanning may be stressful for some patients. Future research has a role in clarifying the benefits of CT scanning in clinical practice. Additionally, MRI or other modalities could shed light on predisposing factors, neural substrates of delirium and consequences of delirium. Lumbar puncture currently only has a clinical role in excluding specific CNS causes of delirium. [15, Rank 5]

The Importance of Managing Delirium and Dementia in Acute Care Settings

Effectively managing delirium in acute care settings remains a significant challenge due to the complexity of the condition and the limited availability of direct positive evidence supporting treatment outcomes. While some studies have demonstrated improvements in patient and caregiver experiences, they have not consistently shown reductions in mortality, hospital stay duration, or other clinical outcomes. As a result, current management recommendations are primarily based on expert consensus rather than definitive empirical data.

A multidisciplinary approach is widely agreed upon, emphasizing the identification and treatment of underlying acute causes, minimizing predisposing risk factors (such as sensory impairments), and optimizing physiological conditions for brain function. This includes ensuring adequate oxygenation, discontinuing or reducing medications known to contribute to delirium, and creating a stable, reassuring environment. Additionally, non-pharmacological interventions remain the cornerstone of delirium management, with pharmacological treatment reserved for cases where severe agitation or distress threatens patient safety. Preventing complications such as aspiration pneumonia, immobility-related deterioration, and long-term functional decline is also crucial, alongside effective rehabilitation strategies and clear communication with families.

Traditionally, low-dose haloperidol has been the preferred pharmacological option, although its use is largely based on historical practice rather than strong clinical evidence. While newer antipsychotics like risperidone show potential, their efficacy remains uncertain. Given the frailty of many elderly patients, the risk-benefit ratio of antipsychotic use must be carefully considered. Current best practice suggests limiting their use to situations where non-pharmacological approaches fail, with short-term administration preferred to minimize adverse effects. However, emerging evidence suggests that even hypoactive patients may experience distressing psychotic symptoms, warranting a more nuanced approach to treatment.

Delivering high-quality delirium care is inherently complex and resource-intensive, requiring specialized expertise. While some hospitals have implemented dedicated delirium management units—offering integrated medical and psychiatric care within optimized environments—these facilities remain limited and are not accessible to all patients. Evidence suggests that such specialized units reduce the duration of delirium and improve functional recovery, but broader systemic improvements in

hospital-wide delirium care are necessary to maximize patient outcomes.

Post-discharge follow-up is a critical yet often overlooked component of delirium management. Persistent delirium at discharge is common and strongly associated with an increased risk of developing dementia. Additionally, many patients experience psychological distress, including feelings of embarrassment or concerns about cognitive decline, which can mimic post-traumatic stress disorder. Providing psychological support and structured follow-up care is essential in mitigating these long-term consequences. Further research is needed to identify biomarkers and risk factors for persistent delirium and post-delirium cognitive decline. Early recognition and targeted intervention could significantly enhance patient care, offering both therapeutic benefits and valuable prognostic information for patients and their families.

Prevention Strategies For Delirium And Dementia

Effective prevention strategies for delirium and dementia focus on identifying high-risk patients and addressing modifiable risk factors. In specialized settings such as geriatric wards, where vulnerability is widespread, most patients are considered high-risk. However, in more diverse clinical settings, validated delirium risk scales—developed for use in intensive care units (ICUs) and surgical units—aid in risk stratification and resource allocation.

Risk Identification and Stratification

In specialized settings such as geriatric wards, most patients are inherently high-risk. However, in broader clinical environments, validated delirium risk scales—designed for use in intensive care units (ICUs), cardiothoracic, and vascular surgery units—assist in stratifying risk and optimizing resource allocation. Identifying patients at the highest risk allows for the prioritization of tailored preventive measures, ultimately improving patient outcomes.

Pharmacological Prevention: Challenges and Potential

Research on pharmacological prevention has primarily been conducted in surgical populations, showing some promise. However, due to inconsistent evidence, routine pharmacological prevention is not currently recommended in clinical practice. Challenges in study design, such as variations in control groups and limitations in measuring hypoactive symptoms,

hinder the establishment of definitive guidelines. Future large-scale studies must address these complexities to determine the efficacy of pharmacological interventions.

Tailored and Multicomponent Prevention Strategies

While broad prevention programs exist, tailored interventions based on individual risk profiles may yield better outcomes. The **NICE guidelines** advocate for personalized prevention approaches, which require further research to refine their effectiveness. High-risk individuals may benefit from resource-intensive prevention plans, while low-risk patients might require simpler interventions.

Key non-pharmacological preventive measures include:

- Ensuring access to **hearing aids and glasses** to reduce sensory impairment.
- Actively **involving family members** in patient care to enhance cognitive and emotional support.
- Providing **frequent orientation cues** to mitigate disorientation and confusion.
- Maintaining **optimal hydration and nutrition** to support physiological brain function.
- Detecting and **managing pain and constipation** to prevent physiological stress.
- Avoiding **unnecessary urinary catheterization**, which reduces infection risk—a known delirium trigger.
- **Minimizing the use of deliriogenic medications**, particularly benzodiazepines and certain anticholinergics.

While these measures are relatively simple and cost-effective, more complex interventions, such as structured **cognitive stimulation**, may require additional resources and staff training. Nonetheless, a stepwise implementation of these strategies can significantly enhance patient care.

Delirium as a Window to Cognitive Decline

Emerging evidence suggests that delirium may accelerate underlying neurodegenerative processes, making it a critical marker for cognitive decline and dementia. Studying delirium offers unique insights into the mechanisms of cognitive dysfunction, allowing for early identification of individuals predisposed to rapid cognitive deterioration.

Key areas of investigation include:

- The **role of genetic predisposition** and cognitive reserve in delirium susceptibility.

- The **pathophysiological link** between acute illness, delirium, and long-term cognitive impairment.
- The identification of **biomarkers** for predicting persistent cognitive decline following a delirium episode.

Understanding these mechanisms can help develop **targeted early interventions** to mitigate long-term cognitive impairment.

Bridging Research and Clinical Practice

Despite extensive research, translating findings into routine healthcare remains a challenge. Many studies have explored multicomponent delirium prevention programs, yet widespread implementation is limited due to **cost constraints** and **variability in healthcare settings**. Moving forward, healthcare providers must focus on integrating **low-cost, high-impact interventions** while refining more complex approaches for high-risk populations.

Moreover, delirium prevention holds broader implications for cognitive health. If successfully implemented, these strategies could:

- **Delay or modify cognitive aging**, preserving mental function in older adults.
- **Slow the progression of dementia**, particularly in individuals with early-stage cognitive impairment.
- **Enhance overall geriatric care**, reducing hospitalizations and improving quality of life.

Evidence-Based Approaches For Identifying High-Risk Patients

Delirium plays a multifaceted role in clinical settings, serving as both an indicator of cognitive vulnerability and a potential contributor to long-term neurological deterioration. It acts as a marker of pre-existing fragility, unmasks previously undiagnosed dementia, mediates the effects of physiological insults, and, in some cases, precipitates irreversible neuronal damage.

Delirium as an Indicator of Cognitive Vulnerability

The onset of delirium often signifies an underlying **neurological susceptibility**, highlighting a diminished cognitive reserve and an increased predisposition to dementia. It represents a decompensated cognitive state in response to stressors, suggesting an impaired ability of the brain to maintain homeostasis under physiological duress. Patients experiencing delirium may therefore require closer monitoring and long-term cognitive assessments to detect subtle but progressive neurocognitive impairments.

Unmasking Previously Unrecognized Dementia

In many instances, delirium serves as the first clinical presentation of an undiagnosed **neurodegenerative condition**, bringing underlying cognitive impairment to medical attention. Its presence necessitates comprehensive post-delirium evaluations, ensuring early diagnosis and intervention for patients at risk of progressive cognitive decline.

Pathophysiological Consequences and Long-Term Cognitive Implications

Severe precipitating factors of delirium—such as **prolonged hypoglycemia, hypoxia, sepsis, critical illness, or major surgical interventions**—can lead to irreversible neuronal injury and persistent cognitive impairment. Additionally, delirium may act as a **mediator of cognitive decline** in patients exposed to various high-risk conditions, including:

- **Major surgical procedures and anesthesia-related neurocognitive effects**
- **Acute respiratory distress syndrome (ARDS) and prolonged mechanical ventilation**
- **Severe systemic infections and sepsis-induced neuroinflammation**

These associations underscore the need for **proactive risk assessment** and **early intervention strategies** to mitigate potential cognitive decline following an episode of delirium.

Integrating Risk Identification into Clinical Practice

To optimize patient outcomes, healthcare professionals should implement **evidence-based risk stratification models**, integrating validated screening tools for delirium prediction and post-episode follow-ups. This approach facilitates early identification of high-risk individuals, enabling targeted interventions aimed at preserving cognitive function and preventing long-term neurocognitive complications.

CONCLUSION

Unravelling the inter-relationship of delirium and dementia poses numerous challenges highlighting the barriers to addressing this important area. Given the lengthy prodromal stage of dementia along with its unpredictable progression, knowledge of the baseline state and trajectory of any cognitive changes are essential. The target population often is frail, with multiple medical co-morbidities, and delirium may go undetected, thus active surveillance is essential.

Refinement of distinct diagnostic criteria and demarcation of the overlap syndrome will be critical to differentiate the two conditions. Identification of the contribution of the presence of delirium is a paramount first step; however, a dose-response relationship with delirium severity and duration will help to strengthen causal inference. Appropriate control for confounding factors, without over-controlling, will be necessary to evaluate the contribution of delirium itself, as well as the mediation effects of other precipitating insults by delirium. Moreover, the presence of delirium poses numerous logistical challenges, including informed consent, ethical dilemmas, and challenges to conducting procedures and neuroimaging in the face of older adults with agitation, behavioural disturbances, severe illness, multi-morbidity, and frailty. [20, Rank 5]

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