

## INTRODUCTION

Delirium is a disease characterized by “impaired cognitive function, perception, consciousness,”<sup>1</sup> and a fluctuating course which helps differentiate it from dementia. It poses a significant burden, leading to longer hospital stays, increased costs, and higher 6-month mortality rates.<sup>2,3</sup> The prevalence of delirium rises with increased age (65 or older), so patients in long-term care (LTC) facilities are at highest risk.<sup>1</sup> The Baby Boomer generation (people born between 1946-1964) make up about 23% of the population, so admittance to LTC facilities is expected to increase exponentially in the next few decades, warranting an increased focus on delirium diagnosis and prevention.<sup>5</sup>

Fortunately, delirium is highly preventable. Multi-component interventions have been found to decrease the incidence of delirium as well as the duration of delirium episodes, decrease hospital admission duration, decrease 6-month mortality rates, and decrease long-term healthcare costs.<sup>3,6</sup> Studies performed in various hospital settings have been shown to decrease around one-third of all cases of delirium by utilizing strategies that target major modifiable risk factors.<sup>7</sup> Unfortunately, there are no universal, clearly-specified guidelines mandated or implemented to prevent delirium.<sup>2</sup> Although there are organizations that offer evidence-based recommendations to prevent delirium in various settings, not all healthcare facilities are required to participate in these. Due to lack of research utilizing these prevention programs in LTC, these sites often rely on loosely-structured facility-based guidelines to prevent delirium, which are often ineffective.<sup>6</sup> If multi-component delirium prevention strategies have proven to be effective in ICU settings, these strategies should be effective in LTC facilities to reduce the incidence of delirium in some of the most vulnerable populations.

## MATERIALS & METHODS

For this Literature Review, several databases were utilized including *CINAHL Complete*, *Medline*, *PubMed*, and *Cochrane Library*. Search terms included “delirium” and “prevention”. Academic research articles were required to be accessible, full-text, peer-reviewed, and discuss non-pharmacological delirium prevention strategies in patients ≥ 65 years old in either ICU or LTC settings. Each study had to include a human sample size of ≥ 30, making the results statistically significant. Articles that were non-English, published before 2008, non-evidence-based, pharmacological “treatment” protocols, or withdrawn from publication were not utilized. Articles were manually reviewed and included in this publication according to relevance.

## RESULTS

In 2013, the Society of Critical Care Medicine (SCCM), the largest non-profit organization specializing in guidelines for critical care institutions worldwide, developed ICU pain, agitation, and delirium guidelines. These recommendations state that “all ICU patients be screened for delirium and that preventive strategies be put in place”<sup>3</sup> by utilizing the ABCDEF method as shown in Figure 1.<sup>10</sup>

Figure 1

- A – Assess, Prevent, and Manage Pain
- B – Both SATs (Spontaneous Awakening Trials) and SBTs (Spontaneous Breathing Trials)
- C – Choice of Sedation
- D – Delirium: Assess, Prevent, and Manage
- E – Early Mobility and Exercise
- F – Family Engagement and Empowerment

The most comprehensive guidelines that provide recommendations for care of patients with delirium in LTC settings include those from the National Institute for Health and Care Excellence (NICE) in the UK and the Registered Nurses’ Association of Ontario (RNAO) in Canada.<sup>6</sup> Unfortunately in the US, the SCCM guidelines only refer to ICU and not LTC settings.<sup>3</sup> Regarding LTC, both NICE and RNAO stress prevention, a high index of suspicion for risk factors, frequent and standardized screening tests, early multi-component interventions, multidisciplinary teamwork among healthcare providers, and education for nursing staff as well as patients and their families.<sup>13,14</sup>

In most of the studies assessed, the consensus for screening for delirium in the ICU either included the CAM for the ICU (CAM-ICU) or the Intensive Care Delirium Screening Checklist (ICDSC). The CAM-ICU (see Figure 2) asks questions regarding the four main pillars of delirium<sup>4</sup> and takes less than five minutes to administer, making it efficient in many clinical settings.

In each study, various individuals performed delirium screening on patients, including providers, nurses, and trained research assistants. Inter-rater reliability for the CAM and ICDSC were notably high in many studies, including 100% between all “trained research assistants” using the CAM in the PiTSTOP study<sup>8</sup> and 97% between all nurses using the ICDSC in Bounds’ study.<sup>11</sup>

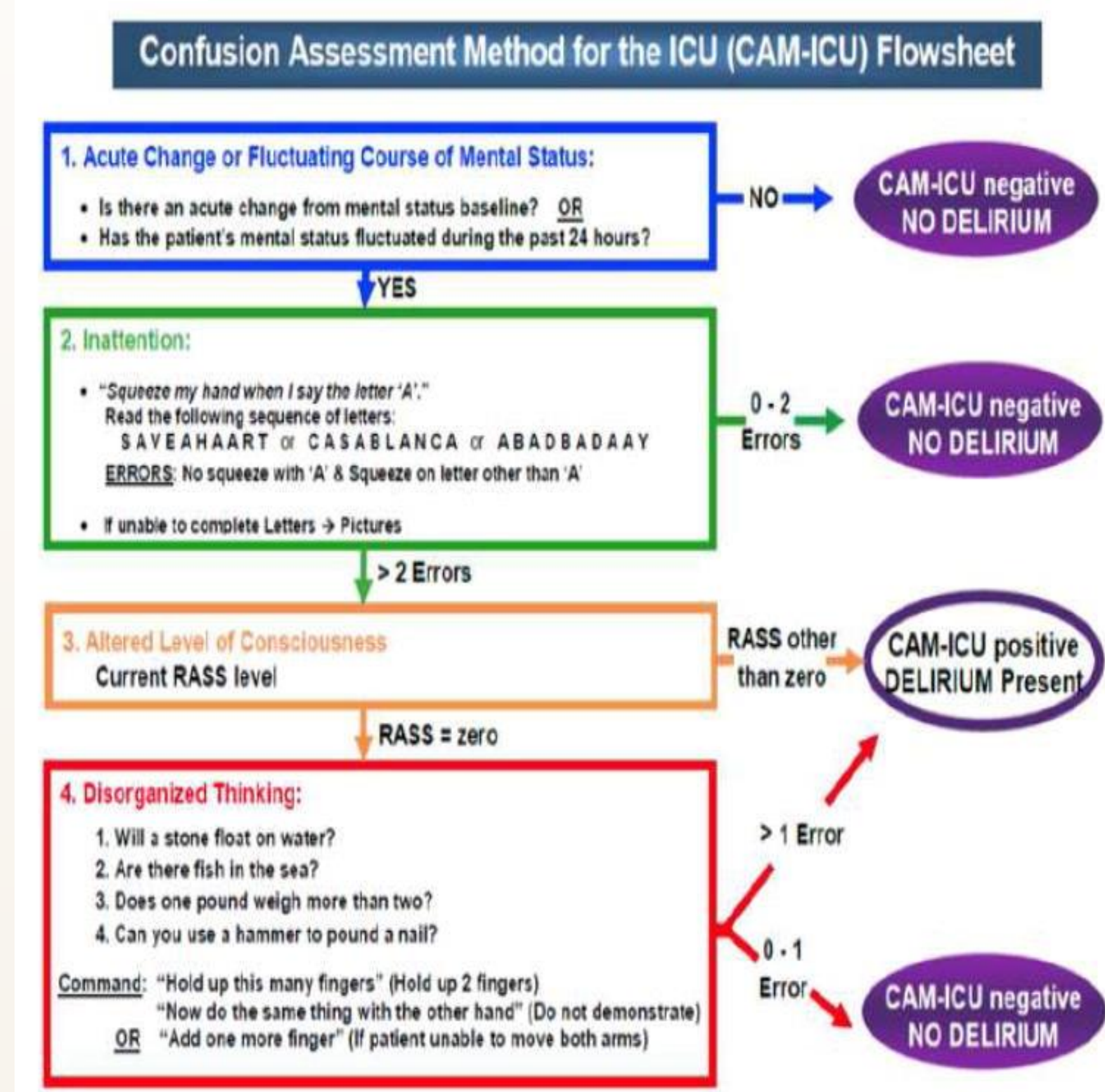
Most of the studies used CAM on patients at least once per day. A study performed by Smithburger, et al., stated “as an initial step to improving delirium management in the ICU setting, delirium assessment results should be discussed daily on patient care rounds”.<sup>3</sup> Nurses in this study screened patients for delirium using the ICDSC twice-daily. Unfortunately, only 86% of nurses reported screening all patients for delirium and only 2% actually reviewed patients’ previous ICDSC scores.<sup>8</sup> In Bounds’ study, ICU nurses assessed for delirium once every 12 hours. This study showed a 15% decrease in the prevalence of delirium after diagnosing it accurately and using prevention strategies.<sup>11</sup>

Bounds’ study showed that the ABCDE method significantly decreased delirium prevalence in an ICU setting from 38% to 23% and the mean duration of delirium decreased from 3.8 days to 1.72 days.<sup>11</sup> Furthermore, “the number of patients with delirium-free stays increased significantly” from 62% to 77%.<sup>11</sup>

A study performed by Disabatino Smith included only some aspects of the ABCDE method in the ICU, such as pain management, sensory stimulation, sleep promotion, early mobilization, and sedation cessation.<sup>3,4</sup> By utilizing this multi-component program, patients experienced a 78% reduction in the relative risk for delirium.<sup>4</sup>

The ABCDEF method, a new version of the ABCDE method, includes “F” which utilizes patients’ family members’ input, establishing a more comprehensive profile of patients’ baseline cognitive function.<sup>9</sup> The significance of family involvement in patient care has been “increasingly identified by healthcare professionals internationally”.<sup>3</sup> Bounds’ study found that all physicians and nurses believed that family involvement would be beneficial to patient care and may reduce delirium incidence.<sup>3,11</sup> Although promising, no studies have shown a definite decrease in delirium incidence by utilizing family members.

Figure 2



## DISCUSSION

Delirium remains unrecognized in approximately 66%-84% of patients in ICUs, emergency departments, and other post-operative settings.<sup>12</sup> This is possibly due to healthcare providers not screening for delirium as frequently as necessary and not recognizing changes in patients’ baseline cognitive function and behavior.

This incidence is likely higher in LTC settings due to no clearly-defined prevention guidelines. The US has likely not put as much emphasis on preventing delirium in LTC due to a lack of statistically significant evidence that these strategies are beneficial in LTC settings.<sup>6</sup> Therefore, these factors may also contribute to the underdiagnosis of delirium, especially in LTC facilities.<sup>6</sup>

The majority of studies showed it did not matter who performed delirium screenings or which screening tools were used, but the consensus was that everyone needed a thorough education about how to properly administer them.<sup>8</sup> Studies that showed the greatest decrease in delirium incidence, such as Bounds’ study, screened patients for delirium every 12 hours instead of every 24 hours.<sup>11</sup> These results show that screening for delirium more frequently is more effective in diagnosing delirium and quickly implementing prevention strategies. Furthermore, it was found that utilizing family members in delirium prevention not only helped give clinical staff a better determination of patients’ baseline behavioral functioning to increase delirium detection, but it may also decrease workload on nursing and clinical staff.<sup>3</sup>

This literature review concluded that many studies have shown reduction in delirium for patients in ICU settings when utilizing multi-component prevention strategies instead of single-component strategies.<sup>15</sup> Because multi-component delirium prevention programs are proven to be effective in decreasing the incidence and prevalence of delirium in ICU settings, these programs are also likely to benefit patients and decrease delirium in LTC settings. Barriers in LTC include lack of knowledge of baseline cognitive function, understaffing, differing organizational structures, and lack of resources and financial support.<sup>13</sup> Ultimately, until more research is performed, these facilities will likely not incorporate these prevention programs into their practices due to these barriers.<sup>13</sup>

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