



# Nonpharmacological Measures to Prevent the Development of Intensive Care Unit (ICU) Delirium

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## Background and Significance

- Delirium is defined as a disturbance in the level of consciousness, with a noted change in cognition, that develops over a short period of time and fluctuates over the course of a day
- According to the American Association of Critical Care Nurses, up to 80% of ICU patients develop delirium, which costs the health care system between \$4-16 billion dollars a year
- Patients who develop delirium have a higher 6 month mortality rate and spend 10 days longer in the hospital compared to patients who do not develop delirium
- Literature suggests that sleep disturbance is associated with the development of ICU delirium
- Factors associated with sleep disruption include light, noise, and frequent interruptions for care and monitoring
- Elderly patients are at the greatest risk for developing delirium

## Research Question

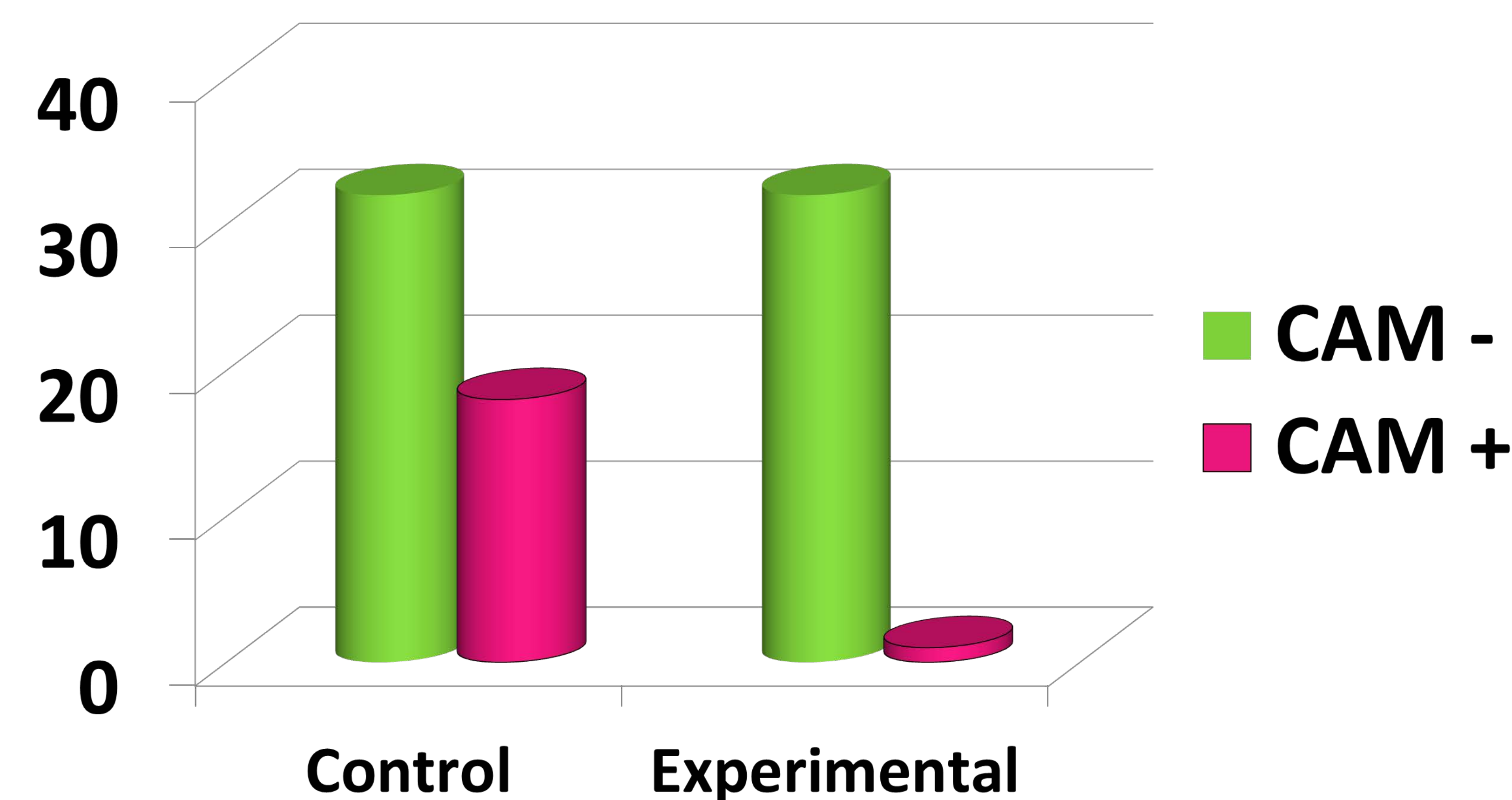
Does the reduction of noise during the night, with the use of earplugs (midnight till 5 am), prevent the new onset of delirium in the adult ICU population?

## Study Design

- A randomized control trial in an adult ICU, of a community NICHE hospital
- Control group= 50 participants;  
Experimental Group=32 participants
- Average age of control group= 68.7 years  
Average age of experimental group=68.9 years
- Patients selected randomly by room number; patients in even numbered rooms wore earplugs between the hours of midnight till 5am, patients in odd numbered rooms did not wear earplugs
- Inclusion criteria: Length of stay in the ICU  $\geq$  72 hours
- Exclusion criteria: History of recent substance abuse, dementia, severe brain injuries, or receiving paralytics
- The Confusion Assessment Method (CAM) for ICU was used to measure delirium at 8am and 8pm

## Results

### Presence of Delirium



|                    | Gender                   | ICU Length of Stay | Total Hospital Length of Stay |
|--------------------|--------------------------|--------------------|-------------------------------|
| Control Group      | Male = 26<br>Female = 24 | 8.14 days          | 13.38 days                    |
| Experimental Group | Male = 14<br>Female = 18 | 5.53 days          | 11.03 days                    |

## Conclusion

- The average ventilator days in the control group was 2.4, while there were no patients requiring ventilators in the experimental group
- Sixty percent of the control group used opioids/sedatives, compared to 41% of the experimental group
- The use of earplugs, utilized to enhance sleep, was shown to reduce the chance of developing delirium in the ICU
- Patient's not developing delirium had a shorter length of stay in ICU and a shorter total length of stay in the hospital
- The sleep protocol, using earplugs at night and providing uninterrupted periods of time for sleep, was developed and is being implemented in the ICU

## Sleep Protocol

- Patient eligibility for the protocol will be reviewed and approved by the ICU physician
- The nurse will provide appropriate night time comfort measures, i.e., brushing teeth, bathing, voiding, relaxing music, aromatherapy, earplugs, and eye masks
- Curtains will be closed and lights are off/dimmed at 2300
- Safety alarm volumes will be decreased, if appropriate
- Telephones disconnected
- Temperature of the room will be made comfortable for the patient
- No routine bathing, phlebotomy, exams, or nebulizer therapy will be given between 2400-0500
- At 0500, the nurse will resume patient care activities

## Implementation Strategies For Sleep Protocol

- Obtained agreement with administration, manager, and intensivists
- Exclusions from protocol:
  - Patients on any medications that require frequent titration and/or intervention
  - Patients on Stroke Protocol
  - New post-op patients < 24 hours
- Education of staff and physicians
- A sign that states "Do Not Disturb" will be posted outside the patient's door during sleep hours

## References

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