

# External Validation of a Proprietary Delirium Superimposed on Dementia Risk Score Using Claims Data and Predictive Analytics



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## Background/Introduction

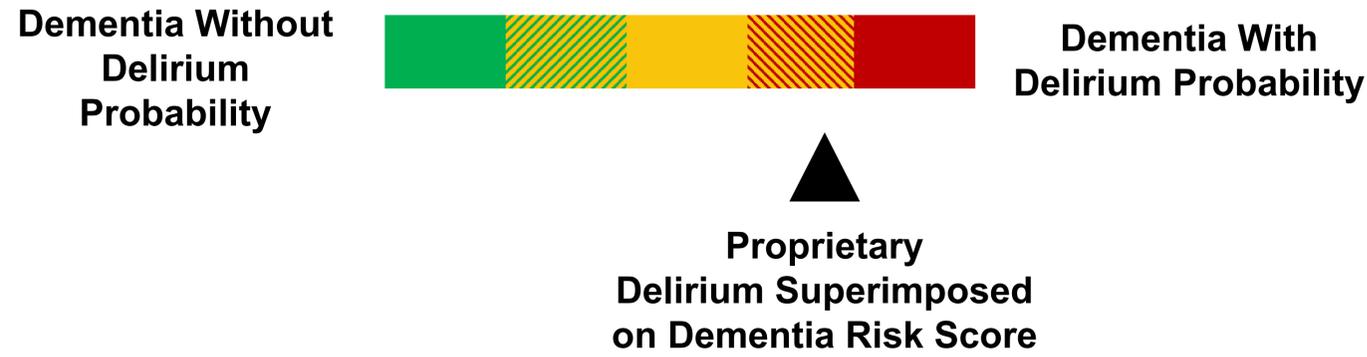
Delirium is an acute change in mental status, attention, and cognition that develops over a short period of time and can fluctuate in course. When delirium occurs in patients with underlying dementia, it is known as dementia superimposed on delirium (DSD). The prevalence of DSD is high in all care settings and patients with DSD have a 15-fold increase in walking dependence, 5-fold increase in nursing home placement, and 2-fold increase in mortality according to published studies.

## Methods

Cognitive claims from long term care insurance (LTCI) were processed using proprietary predictive analytics from Neurocern Inc, a neuroinformatics and data analytics company. The insurance third party administrator (TPA) who processes claims was blinded to the results from the predictive analytics. Claims data including carrier approval and denial decisions were provided. A DSD risk score was given to cognitive claims that met clinical criteria for delirium. A third party neurology task force validated Neurocern's proprietary analytics and DSD score.

## Figures

### Neurocern's Neuroinformatics and Predictive Analytics



## Results

A total of 67 claims (F=41, M=26) were assessed by the third-party task force, the proprietary DSD score had a sensitivity of 94.7% and a specificity of 100%. Inter-rater reliability was high. Females had a higher incidence of DSD than males. Delirium was missed on 28% of approved claims by both the insurance carrier and the TPA.

## Conclusions

Claims flagged with a DSD score should be medically assessed before any severity of dementia or benefit eligibility workup is performed. The high number of delirium cases missed by the insurance carrier and TPA represent claims where the patient's condition may have improved with appropriate medical management and support. DSD claims represent high cost and high mortality claims that require appropriate financial reserving from insurance carriers.