

## Measuring Delirium in the Face of ADRD

Presenter: Richard Jones, ScD

Time	Section
01:22	<b><u>Introduction of Rich Jones</u></b>
03:22	<b><u>Outline</u></b> <ul style="list-style-type: none"> <li>• 1. Why is measuring delirium in dementia an issue?</li> <li>• 2. What evidence is there that measurement differs in dementia?</li> <li>• 3. Potential strategies and work in progress on measurement of delirium in dementia</li> </ul>
04:08	<b><u>Is this interesting?</u></b> <ul style="list-style-type: none"> <li>• New funding opportunity announcement from NIA</li> <li>• Call for proposal for cognitive fluctuations in the context of ADRD</li> </ul>
05:45	<b><u>Why is measuring delirium in dementia an issue?</u></b> <ul style="list-style-type: none"> <li>• Delirium and dementia: overlapping signs and symptoms (table of DSM criteria for Delirium and Major Neurocognitive Disorder lined up by overlapping symptoms) <ul style="list-style-type: none"> <li>○ Cognitive impairment</li> <li>○ Sleep disturbance</li> <li>○ Emotional/mood disturbance</li> </ul> </li> <li>• Distinguishing features are hard to assess <ul style="list-style-type: none"> <li>○ Timing of onset</li> <li>○ Cause(s) of symptoms</li> <li>○ Pattern of cognitive impairments (attention, awareness, vs. other domains)</li> </ul> </li> <li>• Path Diagram with delirium and dementia based on signs and symptoms (only with criteria in DSM)</li> <li>• Limits of the Mini-Mental State examination (early validation study) → validated it by combining delirium and dementia as a single outcome without distinguishing the two)</li> </ul>
10:04	<b><u>What evidence is there that measurement of delirium differs in dementia?</u></b> <ul style="list-style-type: none"> <li>• Differential sensitivity and specificity <ul style="list-style-type: none"> <li>○ Several publications reviewing the literature on delirium and dementia</li> <li>○ DSD (delirium superimposed on dementia): publication showed lower sensitivity and specificity on tools for DSD compared to those without dementia</li> <li>○ Only two studies found that the standardized tools (3D-CAM and 4-AT) were more sensitive but less specific on delirium when dementia is present</li> </ul> </li> <li>• What about the measurement of delirium severity? <ul style="list-style-type: none"> <li>○ Could only find 1 paper in reviewing literature that concerned differences between delirium ratings of severity according to the presence or absence of dementia (published in 1998) <ul style="list-style-type: none"> <li>▪ Did detailed analyses, but found no evidence for differences of the presentation of delirium according to whether a patient had dementia</li> <li>▪ Sample was small (18 delirious-no dementia, 43 delirious-with dementia)</li> <li>▪ Only large effects could have been detected (Cohen's <math>d \geq 0.8</math>)</li> <li>▪ Cannot rule out more subtle delirium measurement differences according to dementia</li> </ul> </li> </ul> </li> <li>• Conclusion <ul style="list-style-type: none"> <li>○ Rich did not identify a lot of high-quality research on this question <ul style="list-style-type: none"> <li>▪ Few studies with both demented and non-demented</li> <li>▪ Small sample size, especially for studies of delirium severity</li> </ul> </li> <li>○ No strong evidence of measurement differences <ul style="list-style-type: none"> <li>▪ Sensitivity and specificity are sample statistics and not properties of a test or instrument</li> </ul> </li> </ul> </li> </ul>
16:24	<b><u>Potential strategies and work in progress on measurement of delirium in dementia</u></b> <ul style="list-style-type: none"> <li>• Variance decomposition <ul style="list-style-type: none"> <li>○ Royall and Palmer's variance decomposition approach to modeling dementia progression</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Their models separate covariance in common to neuropsychological performance from covariance common to neuropsychological performance and functional impairment</li> <li>○ This approach could be applied to delirium (severity) measurement</li> <li>○ Figure from one of their papers (factor analysis model)</li> <li>○ Publication of a validation study of their approach</li> <li>● BASIL-II <ul style="list-style-type: none"> <li>○ Background BASIL-I <ul style="list-style-type: none"> <li>▪ Developed a new delirium severity instrument, but not treated for people with dementia</li> <li>▪ Systematic Literature review, convene expert panels, develop definitions and frameworks, psychometric data analysis of instruments for agreement, develop new instruments in field study data based on results from psychometric data analysis</li> <li>▪ Summary table of factor models</li> <li>▪ DEL-S instrument → validation study</li> <li>▪ Delirium item Bank: Utilization to Evaluate and Create Delirium Instruments</li> </ul> </li> <li>○ BASIL II focused on developing severity measures for persons with and without dementia <ul style="list-style-type: none"> <li>▪ Currently in Field test phase and collecting data, almost done and will be moving into the psychometric testing phase soon</li> <li>▪ Expert Panel review of domains of delirium severity in dementia</li> <li>▪ Revised domain framework for the assessment of delirium severity in the context of dementia</li> <li>▪ BASIL II Field Study <ul style="list-style-type: none"> <li>● Prospective cohort study of older adults, target sample size is 500, conducted in three sites (three different type of patients)</li> <li>● Reference standard raters with patients and caregivers at baseline and follow-up</li> <li>● Adjudication panel for final diagnoses</li> <li>● Trained RA administering DEL-S and DEL-S-AD</li> <li>● Psychometric modeling and modification of DEL-S-AD</li> </ul> </li> </ul> </li> </ul> </li> </ul>
32:34	<p><b><u>Conclusion and discussion</u></b></p> <ul style="list-style-type: none"> <li>● Delirium and dementia share similar presentation, which would seem to make differential assessment difficult, but there is not strong evidence to support that in the literature</li> <li>● BASIL-LL will be large enough to <ul style="list-style-type: none"> <li>○ Detect subtle delirium measurement difference according to dementia status, quantify their effect on (a) case identification and (b) severity measurement</li> <li>○ Develop new measures of delirium severity (DEL-S-AD) that are optimized for the rating of delirium severity in the presence of dementia</li> <li>○ Harmonize DEL-S and DEL-S-AD scales such that data from the two measures can be combined and compared</li> </ul> </li> </ul>
34:14	<p><b><u>Questions and Answers</u></b></p>