

Designing Interventions For Delirium Superimposed on Dementia: U13 Delirium Conference, February 11, 2014

Donna Fick, RN, PhD, FGSA, FAAN^{1,2}

Distinguished Professor
Co-Director Hartford Center of Geriatric Nursing Excellence
Editor, Journal of Gerontological Nursing

¹Penn State College of Nursing

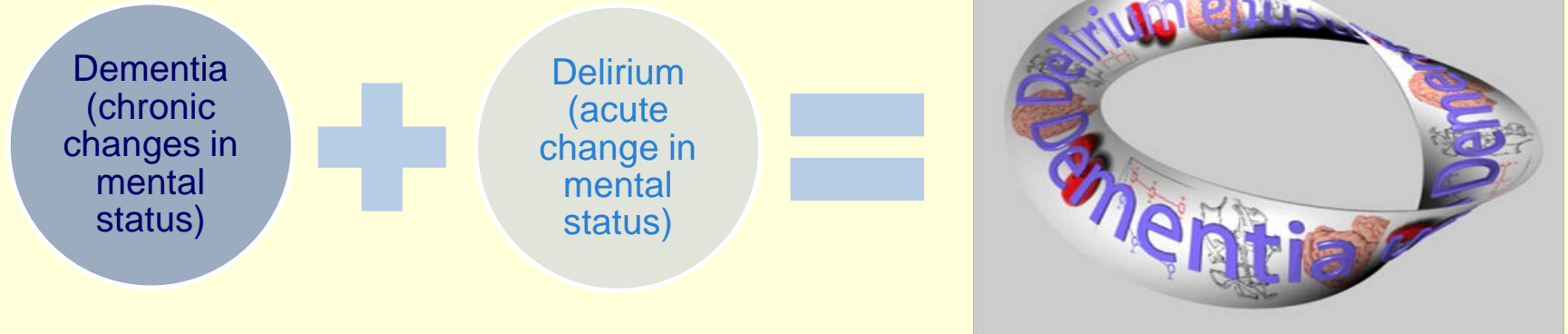
²Penn State College of Medicine



Disclosures


- ❖ **Current funding:** PI, Donna M. Fick: National Institute of Nursing Research Early Nurse Detection of Delirium Superimposed on Dementia (**END-DSD**) (**Grant: 5 R01 NR011042 04**); National Institute of Nursing Research Reserve for Delirium Superimposed on Dementia (**RESERVE-DSD**) (**Grant: 5 R01 NR012242 04**). **MPI** with Ann M. Kolanowski: National Institute of Nursing Research Reserve for Delirium Superimposed on Dementia (RESERVE-DSD) (Grant: 5 R01 NR012242 03)
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- ❖ **Conflicts of interest:** None

Delirium Superimposed on Dementia (DSD)



OVER HALF OF HOSPITALIZED OLDER ADULTS WITH DEMENTIA WILL DEVELOP DELIRIUM—OVER 80% SUBSYNDROMAL DELIRIUM

Evidence Base for Delirium and Dementia Connection is Growing

- ❖ New cognitive impairment:
 - ❖ Increased risk in **new development of dementia** over the next 4 years
- ❖ Worsening function,  LOS & mortality in hospital patients with dementia after a delirium episode
- ❖ Patients with Alzheimer's who develop delirium:
 - ❖ **Rate of cognitive decline is doubled** in the year after delirium compared to those without delirium
 - ❖ More rapid rate of decline persists for 5 years
 - ❖ **DEMENTIA IS THE BIGGEST RISK FACTOR FOR DELIRIUM**
- ❖ (Fick et al., 2013 Jnl Hosp Med; Gross AL et al. Arch Int Med 2012;172:1324-1331, Fong TG et al. Ann Int Med 2012;156:848-856, Fong TG et al. Neurology 2009;72:1570-1575, Witlox J et al. JAMA 2010;304:443-451; Ely, EW, 2004).

YET...

- ❖ MOST INTERVENTION TRIALS HAVE EXCLUDED PERSONS WITH DEMENTIA

DSD Research Literature/Scope

(Pubmed-57 hits using DSD,31 relevant after abstract review, 0 large scale tx trials DSD--all hits before 2000-limitations-narrow database/word search missed studies with dementia subjects)

- ❖ **Acute care**--Sacynski, etl al., 2012 Fick et al., 2013, McCusker,
- ❖ **Post-acute care & Rehabilitation**--walking speed, function- Morandi, Davis, Fick et al., JAMDA In Press, 2014, -Kolanowski, et al., 2013, Marcantonio, et al. 2010
- ❖ **Home care/outpatients**--Voyer, Bull et a;., 2013, Hasegawa et al., 2013 found delirium in 19% dementia outpatients
- ❖ **LTC, Pathology**--Voyer studies, McCuskerField, et. Al., 2012
- ❖ **Interventions for DSD-NO LARGE SCALE TRIALS, No prevention trials, FEW PILOT STUDIES**-Fick et al., 2011; Kolanowski, et al., 2012; Bull et al., 2013

Though Delirium Occurs Most Commonly in Persons With Dementia-Recognition and MEASUREMENT of DSD Is MORE Difficult than delirium alone— Impacting DSD TX Trials & Results



Delirium Superimposed on Dementia

Accuracy of Nurse Documentation

ABSTRACT

Delirium is an acute, fluctuating confusional state that results in poor outcomes for older adults. Dementia causes a more convoluted course when coexisting with delirium. This study examined 128 days of documentation to describe what nurses document when caring for patients with dementia who experience delirium. Nurses did not document that they recognized delirium. Common descriptive

terms included words and phrases indicating fluctuating mental status, lethargy, confusion, negative behavior, delusions, and restlessness. Delirium is a medical emergency. Nurses are in need of education coupled with clinical and decisional support to facilitate recognition and treatment of underlying causes of delirium in individuals with dementia.

Melinda R. Steis, PhD, RN, and Donna M. Fick, PhD, RN, FAAN

Study of Accuracy of Nursing Documentation

- ❖ Retrospective descriptive study from a larger prospective study
- ❖ Chart audit examining nursing documentation of delirium and delirium features
- ❖ Sample: 104 inpatients with dementia. 53 experienced some delirium/51 did not (based on trained RA assessment)
- ❖ Findings:
 - ❖ The word “Delirium” **NEVER** used
 - ❖ Nurses used other terms to describe delirium features

Reference: Steis & Fick, 2012



CLINICAL INVESTIGATIONS

Tools to Detect Delirium Superimposed on Dementia: A Systematic Review

*Alessandro Morandi, MD, MPH,^{abc} Jessica McCurley, MS,^{df} Eduard E. Vasilevskis, MD,^{cdefhi}
Donna M. Fick, PhD,^j Giuseppe Bellelli, MD,^{bkl} Patricia Lee, MLS,^m James C. Jackson, PsyD,^{di}
Susan D. Shenkin, MRCP, Msc,ⁿ Marco Trabucchi, MD,^{bo} John Schnelle, PhD,^{c,d} Sharon K. Inouye,
MD, MPH,^p Wesley E. Ely, MD, MPH,^{cdghi} and Alasdair MacLulich, MRCP, PhDⁿ*

OBJECTIVES: To identify valid tools to diagnose delirium superimposed on dementia.

DESIGN: Systematic review of studies of delirium tools that explicitly included individuals with dementia.

SETTING: Hospital.

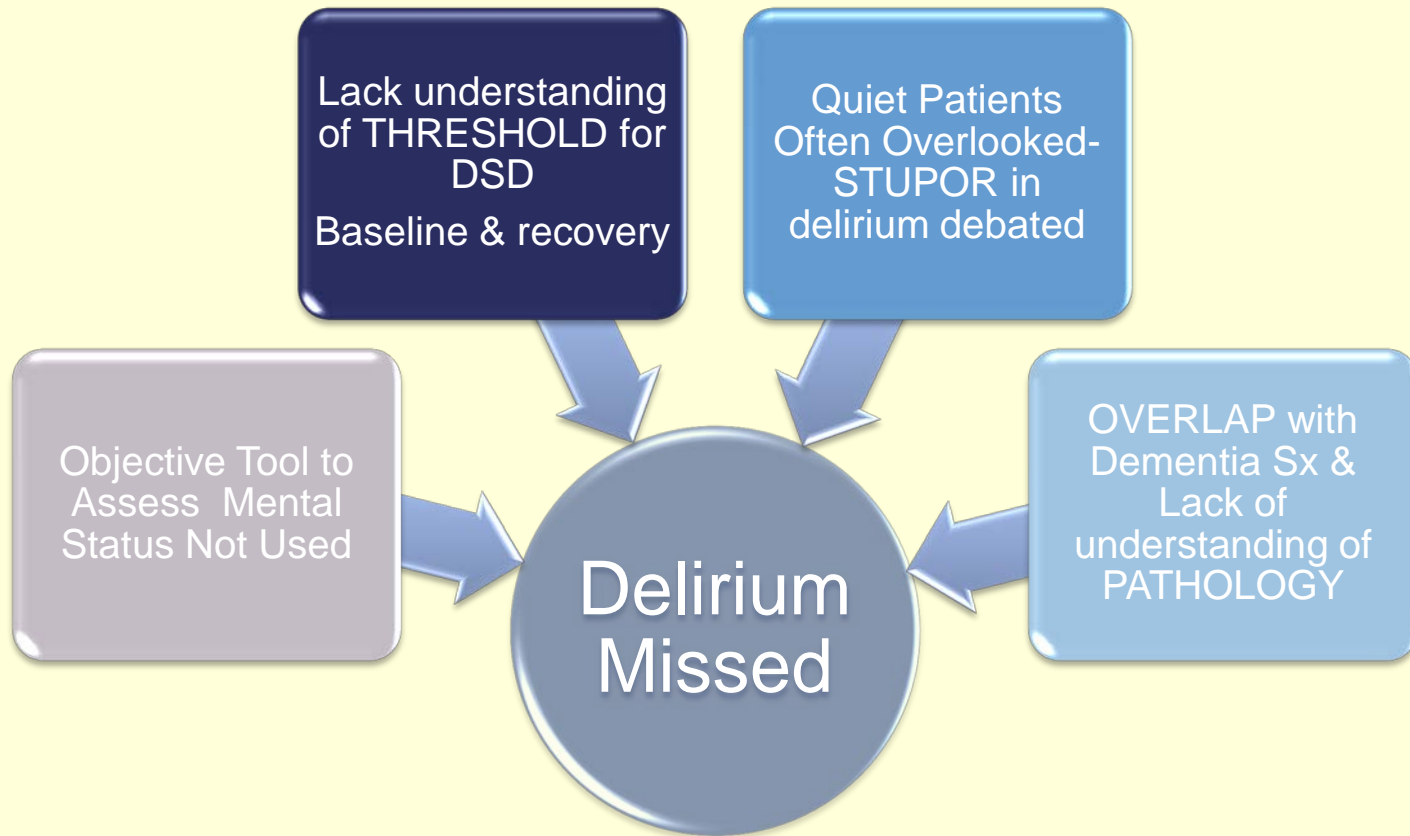
PARTICIPANTS: Studies were included if delirium assessment tools were validated against standard criteria, and the presence of dementia was assessed according to standard criteria that used validated instruments.

MEASUREMENTS: PubMed, Embase, and Web of

Intensive Care Unit (CAM-ICU) reported 100% sensitivity and specificity for delirium in 23 individuals with dementia. One study using electroencephalography reported sensitivity of 67% and specificity of 91% in a population with a 100% prevalence of dementia. No studies examined potential effects of dementia severity or subtype on diagnostic accuracy.

CONCLUSIONS: The evidence base on tools for detection of delirium superimposed on dementia is limited, although some existing tools show promise. Further studies

Why is it hard to recognize AND MEASURE DSD?



DSD TRIALS

Intervention	Results	Reference
Nurse led protocol & education for detection with nurse aide measures targeted to-dementia, sensory, mobility, pain	n = 80 matched patients, 15% with dementia. Delirium post-protocol decreased from 37.5% to 13.8%.12 patients with dementia, 6 pre & 1 post developed delirium	<u>Robinson et al. 2008</u> (observational, matched comparison) Chart-CAM
Delirium Abatement Program- <i>Post-acute care-detect, treat causes, prevent, restore function</i>	n=457, Improved detection of delirium (41% vs 12%), no impact on delirium persistence-129 (46%) had dementia in intervention group	<u>Marcantonio 2010 (C-RCT)</u> Screened over 5,000, 12 sites
Education to increase delirium recognition in persons with Alzheimer's targeting families in <i>home setting</i>	Pilot, n= 6 (all dementia) Improved detection of delirium by families using case vignettes--better detection by daughters	<u>Bull et al. 2013</u> & personal communication

NIH DELIRIUM TRIALS AT PSU

<http://clinicaltrials.gov/>

RESERVE

- ❖ Focus on DSD
- ❖ RCT Intervention
- ❖ SINGLE Component
- ❖ Post-acute Care
- ❖ Patient Centered

END-DSD

- ❖ Focus on DSD
- ❖ C-RCT Intervention
- ❖ MULTI-Dimensional
- ❖ Acute Hospitalization
- ❖ Nurse & Pt Centered

END DSD STUDY AIMS

- ❖ 1: To determine whether the intervention “END-DSD” improves nurse detection and management of delirium superimposed on dementia (DSD)
- ❖ 2. To determine the effect of the “END-DSD” intervention on patient clinical outcomes (LOS, function, psychoactive meds and inappropriate meds).

MULTI-DIMENSIONAL APPROACH : 4 COMPONENTS/BUNDLE “Adaptive versus Technical Fix”

- ❖ Education—initial/ongoing-staff nurse driven--> 300 nurses-100%
- ❖ Electronic Health Record-3 Screens-different sites and systems but same content
- ❖ Weekly Rounds on every shift with Unit Champions who are direct care nurses
- ❖ Feedback loop to UCs and nurses on CAM use, delirium—ADAPTIVE versus TECHNICAL fix

Medications

Medications Reviewed	<table border="0"><tr><td><input type="checkbox"/> Sedative-hypnotics</td><td><input type="checkbox"/> Benzodiazepines</td></tr><tr><td><input type="checkbox"/> Antipsychotics</td><td><input type="checkbox"/> Systemic Corticosteroids</td></tr><tr><td><input type="checkbox"/> H2 Blockers (Cimetidine)</td><td><input type="checkbox"/> Narcotics (Meperidine)</td></tr><tr><td><input type="checkbox"/> Anticholinergics</td><td><input type="checkbox"/> Antihistamines</td></tr></table> <hr/> <p>**Review all the patient's medications.**</p> <p>Check any drug classes that patient is taking</p> <p>Some examples of medication groups are in parentheses. An antihistamine example is Diphenhydramine.</p>	<input type="checkbox"/> Sedative-hypnotics	<input type="checkbox"/> Benzodiazepines	<input type="checkbox"/> Antipsychotics	<input type="checkbox"/> Systemic Corticosteroids	<input type="checkbox"/> H2 Blockers (Cimetidine)	<input type="checkbox"/> Narcotics (Meperidine)	<input type="checkbox"/> Anticholinergics	<input type="checkbox"/> Antihistamines
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<input type="checkbox"/> Anticholinergics	<input type="checkbox"/> Antihistamines								

Infection

Evaluate For Infection	<table border="0"><tr><td><input type="checkbox"/> Urine</td><td><input type="checkbox"/> Lungs</td><td><input type="checkbox"/> Skin</td></tr></table> <hr/> <p>Guide for assessing delirium risk factors is available in Delirium Study folder in External Links.</p>	<input type="checkbox"/> Urine	<input type="checkbox"/> Lungs	<input type="checkbox"/> Skin
<input type="checkbox"/> Urine	<input type="checkbox"/> Lungs	<input type="checkbox"/> Skin		

Dehydration

Assess For Dehydration Signs	<table border="0"><tr><td><input type="checkbox"/> Skin Turgor</td><td><input type="checkbox"/> Mucous Membranes</td></tr><tr><td><input type="checkbox"/> BUN/Creatinine Ratio >20:1</td><td></td></tr></table>	<input type="checkbox"/> Skin Turgor	<input type="checkbox"/> Mucous Membranes	<input type="checkbox"/> BUN/Creatinine Ratio >20:1	
<input type="checkbox"/> Skin Turgor	<input type="checkbox"/> Mucous Membranes				
<input type="checkbox"/> BUN/Creatinine Ratio >20:1					

Environmental/Sensory

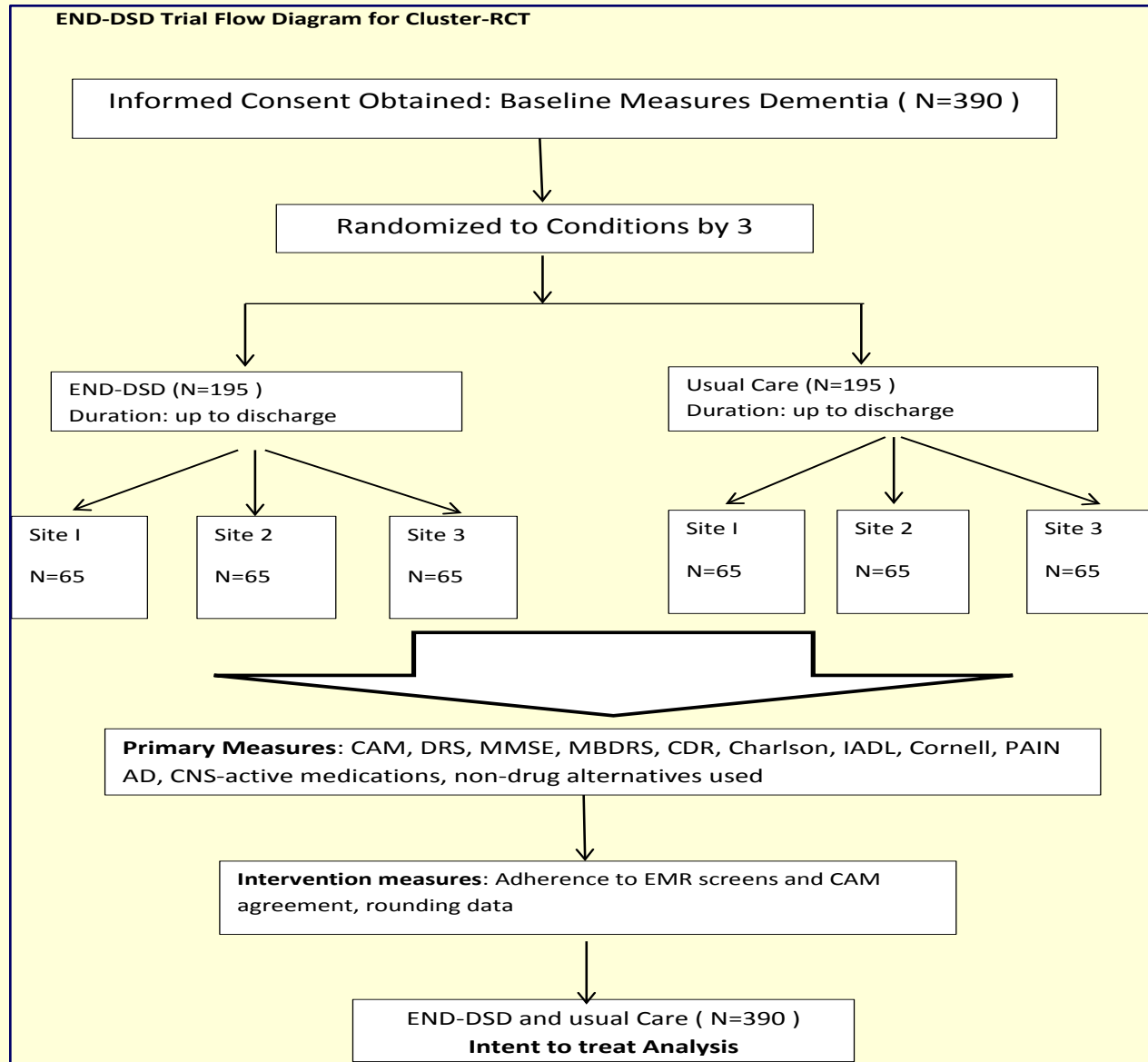
Assess Environmental and Sensory Causes	<table border="0"><tr><td><input type="checkbox"/> Noise</td><td><input type="checkbox"/> Vision</td><td><input type="checkbox"/> Hearing</td><td><input type="checkbox"/> Pain</td></tr></table> <hr/> <p>Assess and check if any are abnormal</p>	<input type="checkbox"/> Noise	<input type="checkbox"/> Vision	<input type="checkbox"/> Hearing	<input type="checkbox"/> Pain
<input type="checkbox"/> Noise	<input type="checkbox"/> Vision	<input type="checkbox"/> Hearing	<input type="checkbox"/> Pain		

Laboratory Values

Review Laboratory Values For Abnormals	<table border="0"><tr><td><input type="checkbox"/> Glucose</td><td><input type="checkbox"/> Sodium</td><td><input type="checkbox"/> Potassium</td><td><input type="checkbox"/> Thyroid</td></tr></table> <hr/> <p>Check those tests listed that are ABNORMAL</p> <p>**Normals**</p> <p>Glucose 70-99 Sodium 136-145 Potassium 3.5-5.1 Thyroid</p>	<input type="checkbox"/> Glucose	<input type="checkbox"/> Sodium	<input type="checkbox"/> Potassium	<input type="checkbox"/> Thyroid
<input type="checkbox"/> Glucose	<input type="checkbox"/> Sodium	<input type="checkbox"/> Potassium	<input type="checkbox"/> Thyroid		



CONSORT Flow Diagram END-DSD



RESERVE for DSD*

- ❖ RESERVE For Delirium Superimposed on Dementia (DSD) is an ongoing, five-year clinical trial ending in 2015.
- ❖ Purpose: to test the efficacy of cognitive stimulation for resolving delirium in persons with dementia subsequent to a hospitalization.

* Kolanowski, A. M., Fick, D. M., Litaker, M., Clare, L., Leslie, D., & Boustani, M. (2011). Study protocol for the recreational stimulation for elders as a vehicle to resolve delirium superimposed on dementia. *Trials*. [doi 10.1186/1745-6215-12-119], 12, 119.

Cognitively Stimulating Activities To Do at the Bedside

- ❖ Word or object searches
- ❖ Crossword puzzles
- ❖ Name that tune
- ❖ Identify sounds
- ❖ Sorting objects

- ❖ Best if individualized to interests, “PRESCRIBED”
- ❖ & targeted to current mental status areas—attention, thinking, memory...



Hypothesis

Compared to participants with DSD who receive usual care, participants who receive RESERVE-DSD will have:

- decreased severity and duration of delirium
- greater gains in attention, orientation, memory, and executive functioning
- greater gains in physical function

We also evaluate potential moderators of intervention efficacy (cognitive lifestyle and APOE status).

Describe the costs associated with RESERVE-DSD.

OUR STUDY CHALLENGES

Recruitment & Workflow

Culture

CAM
Fit into front
line

Non-Drug, Rounds & Education

Uptake
versus
EMR

Non-Drug
Fit &
adherence

Communication

Who owns
it?

Why care
about
DSD?



CLINICAL SCHOLARSHIP

The Triple Challenge of Recruiting Older Adults With Dementia and High Medical Acuity in Skilled Nursing Facilities

Ann Kolanowski, PhD, RN, FGSA, FAAN¹, Paula Mulhall, RPN, RGN, RN², Andrea Yevchak, GCNS-BC, RN³, Nikki Hill, MS, RN⁴, & Donna Fick, PhD, GCNS-BC, FGSA, FAAN⁵

¹ *Zeta Psi*, Elouise Ross Eberly Professor, School of Nursing, The Pennsylvania State University, University Park, PA

² Project Director, School of Nursing, The Pennsylvania State University, University Park, PA

³ *Beta Sigma*, Doctoral Candidate, School of Nursing, The Pennsylvania State University, University Park, PA

⁴ *Beta Sigma*, Doctoral Candidate, School of Nursing, The Pennsylvania State University, University Park, PA

⁵ *Beta Sigma*, Distinguished Professor, School of Nursing, The Pennsylvania State University, University Park, PA

Key words

Recruitment strategies, skilled nursing facilities, dementia

Correspondence

Dr. Ann Kolanowski, 201 Health & Human Development East, Pennsylvania State University, School of Nursing, University Park, PA 16802. E-mail: amk20@psu.edu

Abstract

Purpose: To describe strategies, culled from experience, for responding to several recruitment challenges in an ongoing randomized clinical trial of delirium in persons with dementia.

Organizing Construct: Delirium in people with dementia is common across all cultures. Little research supports the use of specific interventions for delirium. Recruitment of an adequate sample is critical to the validity of findings from intervention studies that form the foundation for evidence-based

What we need for stronger intervention trials in DSD

- ❖ **Need to test how much we need to target delirium causes and/or enhancement & quality of dementia care in DSD-** To know this we need to develop a better understanding of mechanism, pathology and overlap with dementia—i. e. over stimulate/under stimulate- do we address dementia needs over delirium (can't do it all)
- ❖ **Need a better understanding of components and dynamic state of COGNITIVE RESERVE** as this may be key to prevention & interventions for DSD

What we need for DSD Interventions

- ❖ We NEED both “clean” single and multi-dimensional approaches to uncover the best approach
- ❖ Non-drug approaches may be more important (**FIRST DO NO HARM**) in DSD—BUT need rigorous RCTs with controlled dosage and adherence so we know what is in the non-drug black box and what helped the most (**AVOID THE KITCHEN SINK APPROACH**)
- ❖ May need different methodologies and frameworks for this-EX- **multiphase optimization strategy (MOST)** approach (Linda Collins, 2013)—the briefest intervention that achieves a reasonable goal/effective

PERSON-CENTERED TX

- ❖ Though we need more work to build a rigorous body of evidence in DSD—studies such as Robinson (2008) & work by Kolanowski & Van Hartsma (2013) suggest a person-centered & well-being (positive) approach is important in Delirium and DSD;
 - ❖ Focus on UNMET NEEDS--needs and response based behaviors (NOT behavior as “problematic”)
 - ❖ www.nursinghometoolkit.com
 - ❖ Facilitating patient values and preferences
 - ❖ Individualized cognitive activities geared to INTERESTS & COGNITION
 - ❖ Getting to KNOW THE PERSON—All About Me Board
 - ❖ Focusing on STRENGTHS and POSITIVE behaviors (not negative outcomes and behaviors)

TODAY IS

ALL ABOUT ME

I am from

The names of my family members are

I worked as a

I enjoy

Things that make me feel happy are

I LIKE TO BE CALLED

I have hearing/vision impairment & have glasses/hearing aides

I feel relaxed and calm when

I enjoy listening to

My favorite TV channel is

I don't like

YOUR NURSE TODAY IS:

YOUR NURSING ASSISTANT TODAY IS:

CONSIDER ROLE THAT CONTEXT PLAYS

- ❖ Address translation and implementation issues— testing these in diverse settings---delirium interventions tested in AMC often do not work well in community settings--in the real world-use of PARIHS framework (Rycroft-Malone, 2013).
- ❖ Most older adults receive care in settings with little or no geriatric expertise-we must consider the **ROLE OF CONTEXT** in intervention design.

FUTURE CHALLENGES FOR DSD Intervention Trials

- ❖ **Measurement issues**---how patients move in and out of DSD, MCI, delirium. What is the homecare, ED, family/caregiver role in detection? the-threshold for change from baseline? Measurement of mediators and moderators-APOe status, lifetime experience
- ❖ **Improved understanding of neuropathology**--for both conditions-need this to target interventions more precisely.
- ❖ **Recruitment patients & proxies and collaborative IRB process**—harder in community, HIPPA constraints, use of evening and weekend staff, lay friendly materials (Kolanowski et al., 2013)

Other Questions For U13 Group (Specific to DSD)

- ❖ What are the most common (or best and difficult) **Features & Sx in DSD**-Acute/baseline, stupor, inattention...
- ❖ What is the **THRESHOLD** for change/abnormal/recovery in DSD for use in practice and in intervention trials?
- ❖ What are the **unique contributions** of delirium and dementia that are important for treating DSD?
- ❖ **CAN** we currently reliably **MEASURE DSD and INTERVENE WITH DSD** right now? Or is it the **Emperors new clothes** ? (Devlin et al., 2013)

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Our sites, patients, investigators,
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- ❖ Harvard, Aging Brain Center,
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- ❖ Patients, families and nursing staff