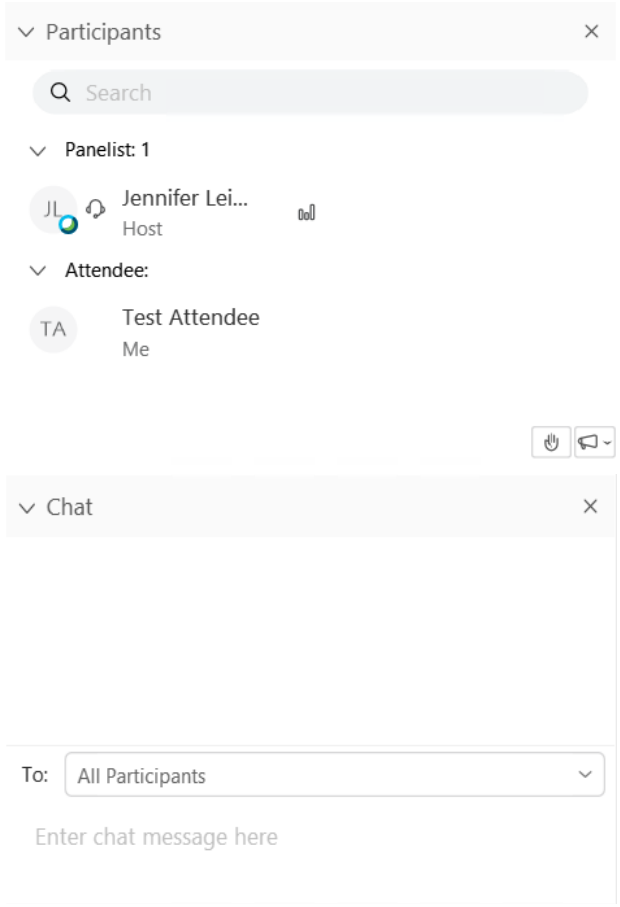
Notice of Special Interest Webinar

Research to Improve the Interpretation of Patient-Reported Outcomes at the Individual Patient Level for Use in Clinical Trials

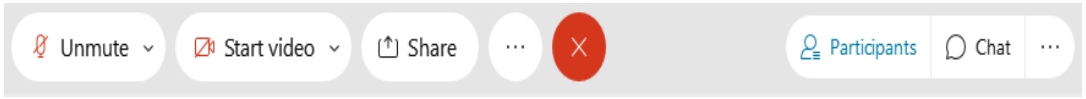
National Institutes of Health

Turning Discovery Into Health

Webinar Logistics and Q&A Procedures



- All lines will be in listen-only mode
- Submit comments at any time using the Chat Panel and select *All Panelists*
- You may need to activate the appropriate panel using the menu option found at the bottom of your screen



- Closed captioning is available as a link in the Chat Box
- This webinar is being recorded

Presenters

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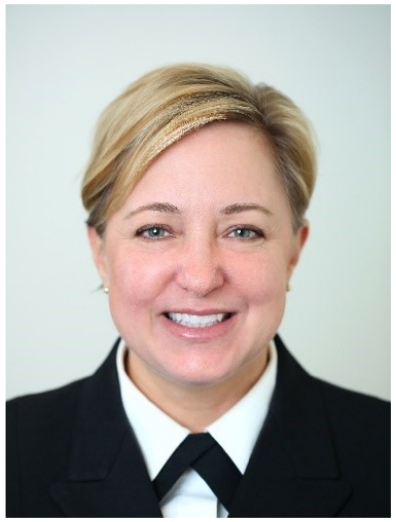

Christine Hunter, PhD, ABPP
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Webinar Agenda

- **Scientific Background**
- **Overview of trans-NIH FOA NOSI (NOT-OD-20-079)**
  - Purpose and Scope
  - Research Examples
  - Application Information and Key Dates
  - NIH Program Contacts
- **Q&A Session**

Background: Capturing Health Information Well

Considerable investments in development and testing of PROs

Validity, reliability, and utility of PROs extensively studied at the group level

Increasing interest in using PROs for individual care

Patient-reported Outcome (PRO) Tool Examples

PROMIS

Neuro QoL

NIH TOOLBOX Motor Emotion Sensation Cognition

ASCQ-Me

SF-36

EQ-5D

Patient-Reported Outcomes (PROs)

Any report of a person's health status including symptoms, functional impairment, health-related quality of life and well-being, that is obtained directly from a patient, without interpretation of that report by a clinician, observer, or anyone else

The development of any PRO instrument should follow a transparent process from the conceptual framework to the testing of measurement properties at the group level

Background

- Current tools have been developed for group-level interpretation
- Smaller evidence base to guide interpretation of PRO scores for individual patient care in various clinical contexts
- Confounding factors:
  - Measurement error, differential item functioning, intra-individual variability
- Sensitivity and specificity are critical

Research is needed to better understand the appropriate clinical interpretation of PRO scores for individual patients in a variety of disease and healthcare contexts

Notice of Special Interest (NOSI)

- A NOSI is a notice to the investigator community used to stimulate grant-supported research in high-priority and high-opportunity areas of science

- NOSIs provide a standardized format for NIH institutes and centers to share and update research priorities

NOSI: Individual Patient PRO Score Interpretation

NOT-OD-20-079

Research to Improve the Interpretation of Patient-Reported Outcomes at the Individual Patient Level for Use in Clinical Practice

https://grants.nih.gov/grants/guide/notice-files/NOT-OD-20-079.html

Participating Institutes and Centers

NCCIH, NCI, NHGRI, NIA, NIAAA, NIAMS, NIDCD, NIMH, NIMHD, NINDS, NINR
OBSSR,* ODP,* ORWH*

* These NIH Offices may co-fund applications assigned to Institutes/Centers

NOSI Purpose

To stimulate research that contributes to the evidence base for precise and accurate PRO score interpretation at the individual patient level for use in clinical practice

NOSI Goals

- Encourage research applications that develop evidence to support the interpretation of existing, well-validated PROs for use in clinical care settings
- Develop new knowledge to better interpret PRO measures that:
  - ✓ Have been developed and validated for use in clinical research and have strong, demonstrated psychometric properties
  - ✓ Are currently being used, or could have utility, in clinical practice
- Support methodological studies that provide meaningful interpretation of PRO scores captured and acted upon at the individual patient level for clinical decision-making

Transition to Dr. Sandra Mitchell

Score Interpretation for What Purpose(s) in Clinical Practice?

- Screening
- Diagnostic criteria
- Trigger interventions
- Tailor and target care plans: Identify those at risk for inferior outcomes and implement risk adapted interventions
- Quality and performance measurement
- Responder analysis and determination of treatment benefit

Considerations for Individual-Level Score Interpretation

- What is the interpretation we wish to make?
  - Meaning of a single score
  - Onset versus resolution of a problem
  - Worsening versus improvement
  - Threshold/cutpoint for diagnosis or defining risk
  - Clinical benefit versus significant deterioration (or responder definitions)
- To what extent do minimum clinically important differences* established at the group level generalize for individual-level interpretation?
- How do clinically important outcome values for specific measures vary:
  - Within and between individuals
  - Across time
  - What factors influence that variability

*the smallest difference in the outcome of interest that informed patients, or their proxies perceive as important and that may lead to a change in clinical management

Individual-Level Score Interpretation: Sources of Error/Bias

- Instrument validity, reliability, sensitivity, and responsiveness
- Recall period
- Differential item functioning
- Response shift
- Meaning of change scores may be different for individuals who have a lot of a problem versus very little or none of that problem
- Match of measure scaling and intended purpose: Ordinal scale may function well for screening purposes but insufficiently accurate for responder definition
- Probability of an event/diagnosis/outcome (rare events may require greater sensitivity, accuracy and precision)

Approaches to Consider

- Methods and metrics used to improve interpretation at individual level:
  - Change scores
  - MID, Score ranges, diagnostic thresholds
- Topics to support research design
  - Determine what the score is being used for
  - How precise does it need to be?
  - Is the method robust for the individual and other individuals
- Is the approach generalizable (across contexts, disease, etc.)?

Research Examples: Bias, Variance, Error

1. How can ceiling or floor effects in sub-populations be accounted for when applying scores to specific individuals?
2. How can measurement non-invariance be accounted for when interpreting individual patient scores?
3. What instrument validity, reliability and responsiveness levels are needed for score interpretation at the individual level?
4. What sources of bias and error are present when interpreting individual scores (e.g., can cut scores on one PRO be used as the cut scores for a co-calibrated measure)?

Research Examples: Screening and treatment effects

1. How can PRO scores (e.g., pain, fatigue, physical function) be used to screen for, or diagnose conditions, diseases or treatment-related impairments, and/or to identify a need for specific interventions?
2. Recovery/Improvement: What PRO score improvement indicates a clinical benefit at the individual patient level after medical treatment?
3. Worsening: What level of PRO score change after medical treatment represents a meaningful decline in an individual patient?

Research Examples: Contextual Influences

1. Should PROs be interpreted differently for individuals with specific conditions, those with multiple conditions, or other high-risk contextual factors? If so, how?
2. How might other clinically relevant information (e.g., comorbidity, demographics, social determinants of health) affect the interpretation of individual PROs in clinical practice?
3. In making individual patient decisions, how should PROs be interpreted in the context of other clinical indicators such as laboratory tests, biomarkers, or imaging studies?

Research that is non-responsive to this NOSI

- Development of new tools
- Interpretation of PRO scores comparing groups of patients
- Inclusion of PROs in clinical workflows (e.g., use in clinical decision-support, interaction with dashboards, visual representation of scores to clinicians)

***NOT** intended to encourage development, testing, or validation of new PRO measures, compare group-level data, or study methods for electronic PRO data capture or the presentation of PRO summaries to clinicians or patients*

Transition to Dr. Christine Hunter

Application Information

- Indicate in response to NOT-OD-20-079 in Field 4.b on the SF 424 form
- Apply Under Parent NIH Funding Opportunity Announcements:

Activity Code	FOA
R01	PA-19-056 – NIH Research Project Grant (Parent R01 Clinical Trial Not Allowed)
R21	PA-19-053 – NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Not Allowed)

- Although NCI and NINDS are not listed as a Participating Organization in both FOAs listed above, applications for this initiative will be accepted *provided that the NOSI is referenced in Field 4.b on the SF 424.*

Key Dates

- **Original Release Date:** March 24, 2020
- **Expiration Date Extended:** New Date - May 8, 2023
- No letter of intent required
- Standard Receipt Dates Apply

https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm

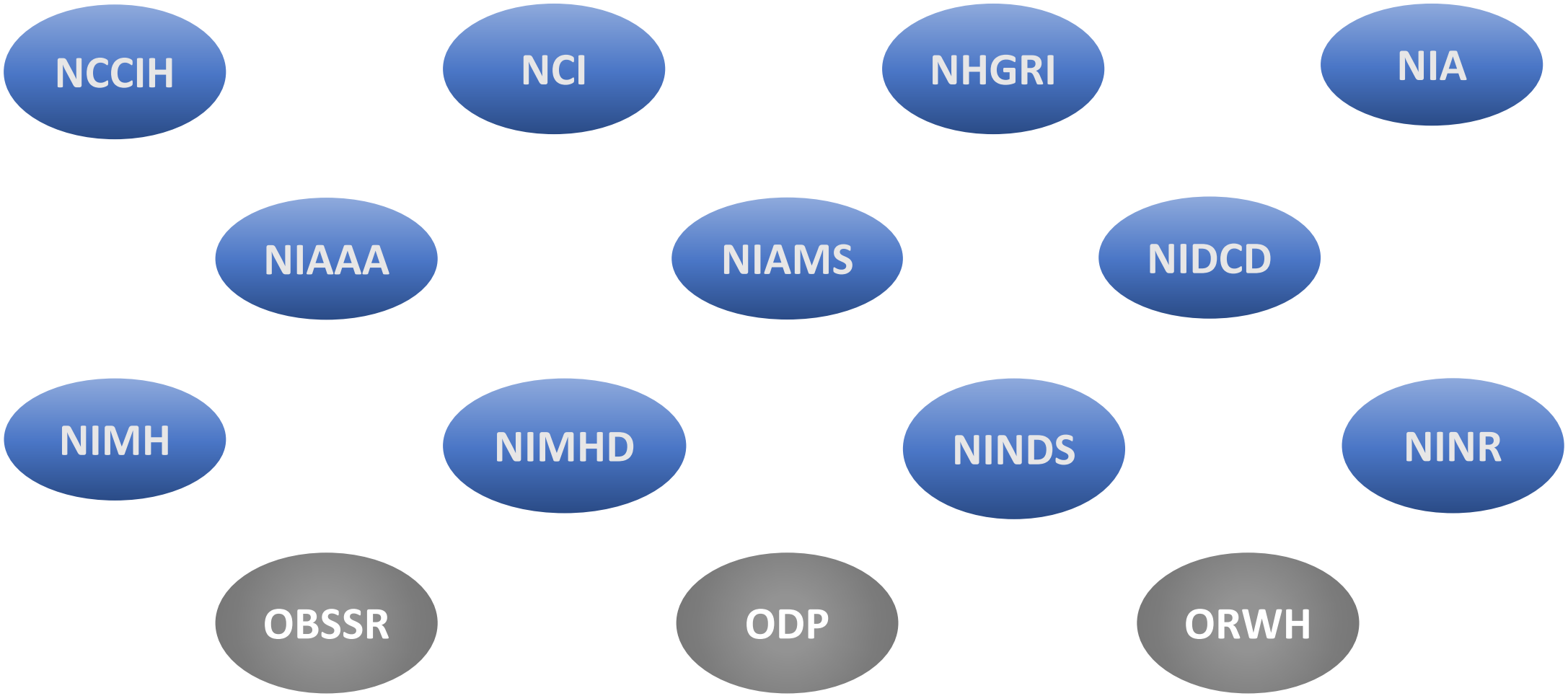
Grantsmanship Suggestions

- Tell a coherent and compelling “story”
- Never assume reviewers “know what you mean”
- Keep it focused and feasible
  - Address the weaknesses preemptively
  - Discuss design trade-offs
  - One figure is worth…well, at least 500 words!
- Give yourself enough time to review & revise
- Critique, edit, critique, edit, critique, edit….

Grantsmanship Suggestions

- Do not assume reviewers are aware of NOSI Content
- Provide relevant background on NOSI and significance of the research
- Use terminology that is widely understood (i.e., avoid jargon) and define your acronyms and terminologies (ie. MICD, MID)
- Strong science is necessary but not sufficient
- The technical quality of the proposal is also essential
  - Well organized
  - Thoughtfully written
  - Enjoyable/easy to read and follow
  - Attractively presented
  - Absolutely free of errors!

Collaborating NIH Institutes, Centers, Offices



Disease-Focused Research Priority Areas

- NIH Institutes, Centers, Offices Focus on Diseases and Populations
- There may be research questions unique to specific diseases or clinical conditions
- Follow up with appropriate NIH Contact for disease or population-focused research questions

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Questions and Discussion

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For more information visit:
https://grants.nih.gov/grants/guide/notice-files/NOT-OD-20-079.html





NIH National Institutes of Health
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NIH Staff Contacts for NOSI

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