

# Using Close-Ended Web Probes to Inform the Redesign of the National Health Interview Survey (NHIS)

Paul Scanlon, PhD

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## Presentation Overview

1. Web Probing and Cognitive Interviews
2. The NCHS Research and Development Survey (RANDS)
3. NHIS Chronic Lung Condition Questions
4. Methodological Considerations for Using Close-Ended Web Probes

## Web Probing and Cognitive Interviewing

- The goal of question evaluation studies is to reduce the potential measurement error of survey items.
- Traditional method is **Cognitive Interviewing**
  - Purposive sampling
  - Semi-structured interviews
  - Qualitative data and analysis
- Newer method is **Web Probing**
  - Wide range of samples—from convenience to representative
  - Structured interviews\*
  - Quantitative and qualitative analysis\*

## Web Probing and Cognitive Interviewing

	Traditional CI	Web Probing
Sample	Narrow Geographic & Demographic Dispersion	Wide Geographic & Demographic Dispersion
Goals	Explore and Evaluate	Explore and Evaluate or Confirm
Probes	Scripted or Reactive / Spontaneous	Scripted
Add'l Info	Personal Narratives Context	Response Distributions Paradata

From Edgar and Scanlon, 2017 "Apples and Oranges: What is the right question when comparing Web Probing and Cognitive Interviewing?" AAPOR

National Center for Health Statistics

Center for Questionnaire Design and Evaluation Research



## Close-Ended Web Probing

- **Close-ended web probes provide a way to mix qualitative and quantitative findings**
  - Use findings from Cognitive Interviews to design probes
  - Answer categories are patterns of response
  - Embedded into questionnaire following question or questions under evaluation
  - Findings can be analyzed alongside other quantitative variables
- **Probes are designed around the patterns of interpretation found during cognitive interviews**

## Example of a Close-Ended Web Probe...

**NHIS Question:** Would you say your health in general is excellent, very good, good, fair, or poor?

**Probe Question:** When you answered the previous question about your health, what did you think of?

1. My diet and nutrition
2. My exercise habits
3. My smoking or drinking habits
4. My health problems or conditions
5. The amount of times I seek health care
6. The amount of pain or fatigue I have
7. My conversations with my doctor

## NCHS' Research and Development Survey (RANDS)

- **Non-production survey designed to examine the potential uses of web panels**
- **Used Gallup Panel**
  - “Representative”, Recruited, Statistically-sampled
- **Conducted over two rounds in 2015 and 2016**
  - Second round included close-ended web probes
- **n=4784 (Round 1=2304; Round 2=2480)**
- **Only web respondents**
  - Panel itself includes non-web panelists, but they were not included in this survey



## An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

- **Currently NHIS asks three separate questions about chronic pulmonary disease**
  - Emphysema ever
  - COPD ever
  - Chronic Bronchitis in last 12 months



## Current NHIS Scheme

Have you ever been told by a doctor or other health professional that you had emphysema?

1. Yes
2. No

Have you ever been told by a doctor or other health professional that you had chronic obstructive pulmonary disease, also called COPD?

1. Yes
2. No

During the past 12 months, have you been told by a doctor or other health professional that you had chronic bronchitis?

1. Yes
2. No

## An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

- **Currently NHIS asks three separate questions about chronic pulmonary disease**
  - Emphysema ever
  - COPD ever
  - Chronic Bronchitis in last 12 months
- **Cognitive interviewing revealed large potential for measurement error**
  - COPD *INCLUDES* emphysema and chronic bronchitis!
  - Counting acute bronchitis in chronic question
- **A “combined” question was suggested and tested on RANDS**

# An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

Have you ever been told by a doctor or other medical professional that you have Chronic Obstructive Pulmonary Disease or COPD, emphysema, or chronic bronchitis?

1. Yes
2. No
- [9] Refused

## An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

- **Currently NHIS asks three separate questions about chronic pulmonary disease**
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  - COPD ever
  - Chronic Bronchitis in last 12 months
- **Cognitive interviewing revealed large potential for measurement error**
  - COPD *INCLUDES* emphysema and chronic bronchitis!
  - Counting acute bronchitis in chronic question
- **A “combined” question was suggested and tested on RANDS**
  - Wanted to find a question that captured the same construct, but with a lower potential for measurement error

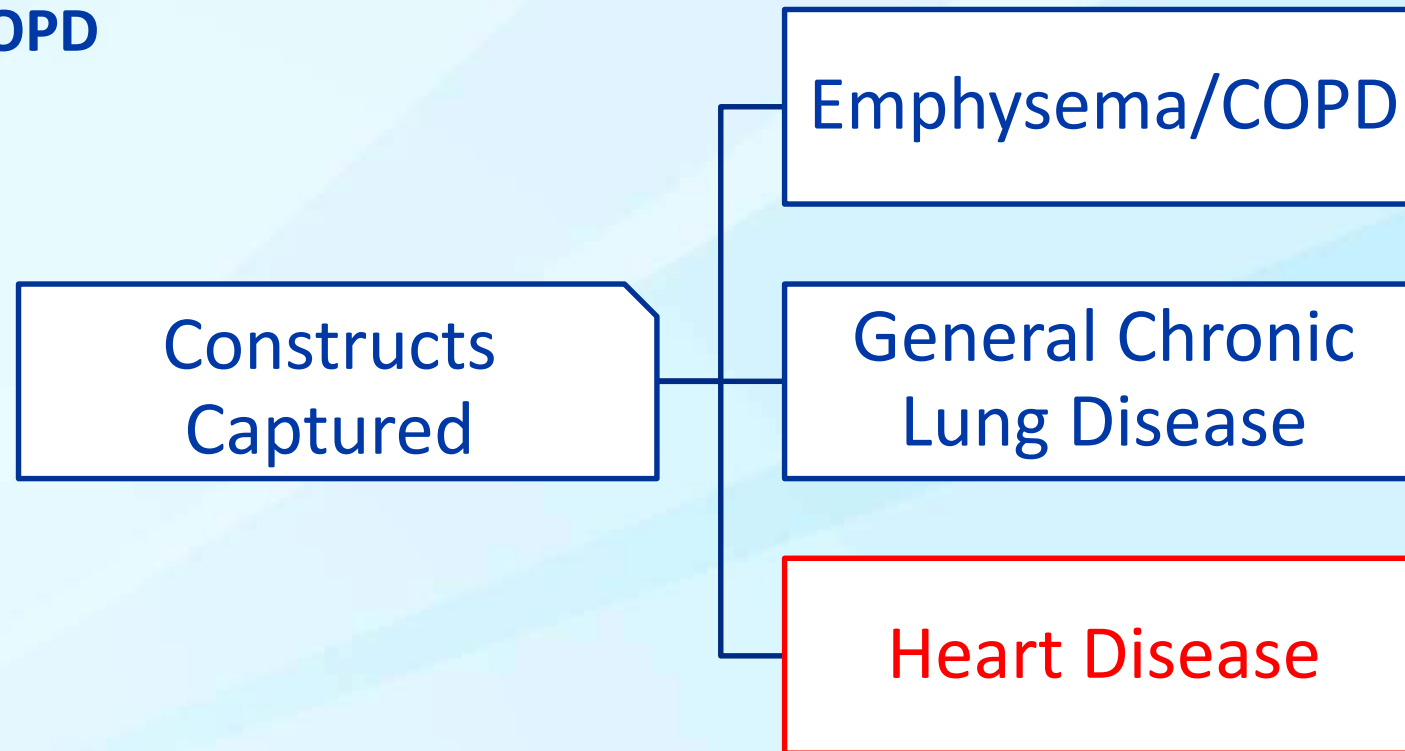
## An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

Does the combined question capture the same constructs as the separate questions do?

## Findings from Cognitive Interviewing

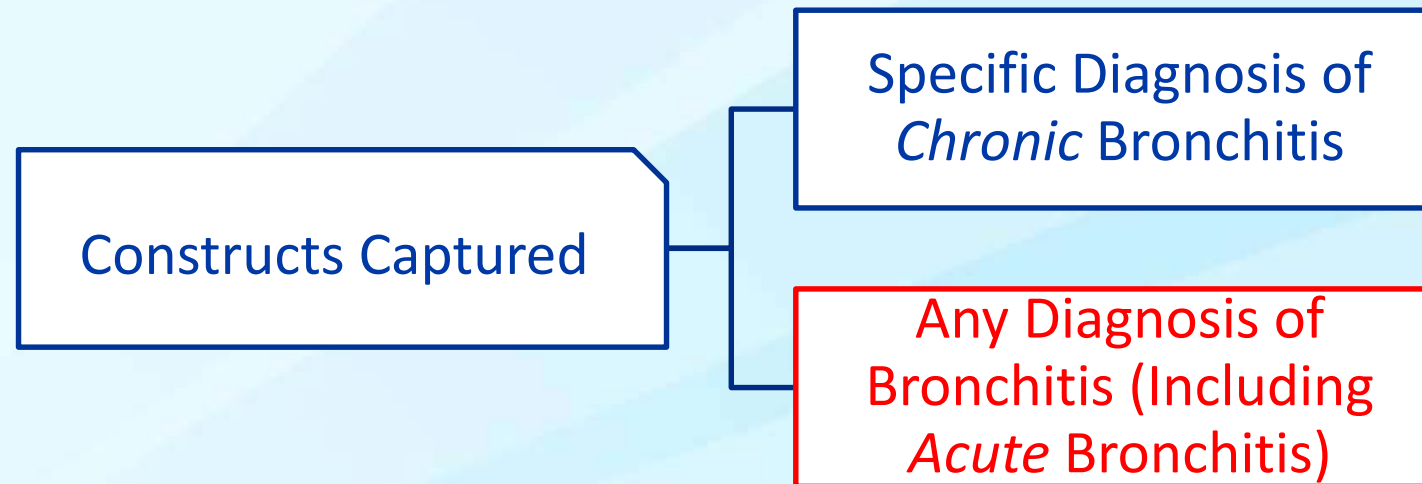
EPHEV and COPDEV: Ever been told...

Emphysema/COPD



## Findings from Cognitive Interviewing

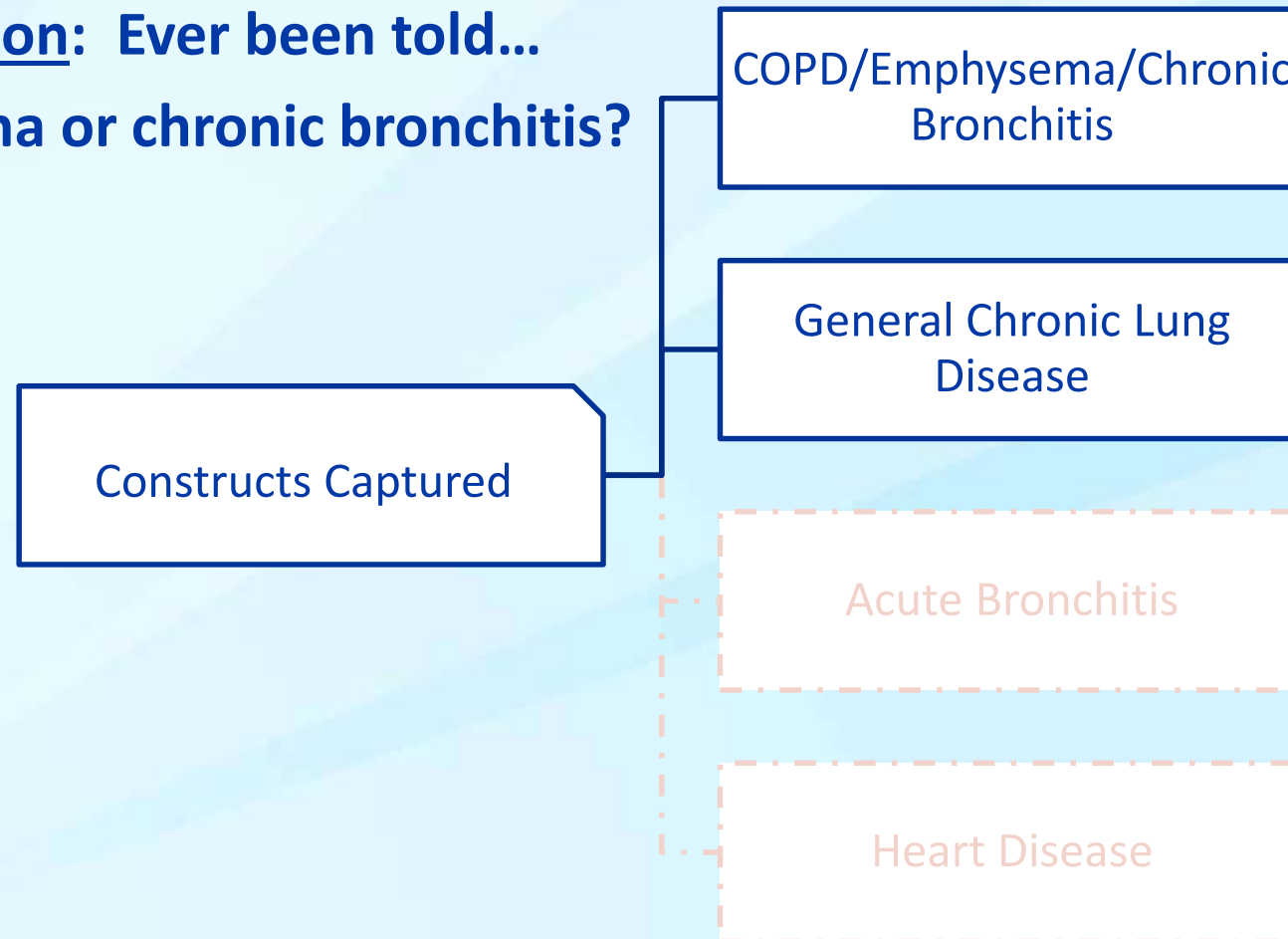
CBRCHYR: In the past 12 months...chronic bronchitis?





## Findings from Cognitive Interviewing

Combined Question: Ever been told...  
COPD, emphysema or chronic bronchitis?



## Findings from Web Probing

- Probes were administered after combined question (NEWLUNG) in Round 2 of RANDS
- Only respondents who answered NEWLUNG “yes” received probes
- Probes designed to tease out specific condition respondents were thinking about (and see if acute issue was present or not)

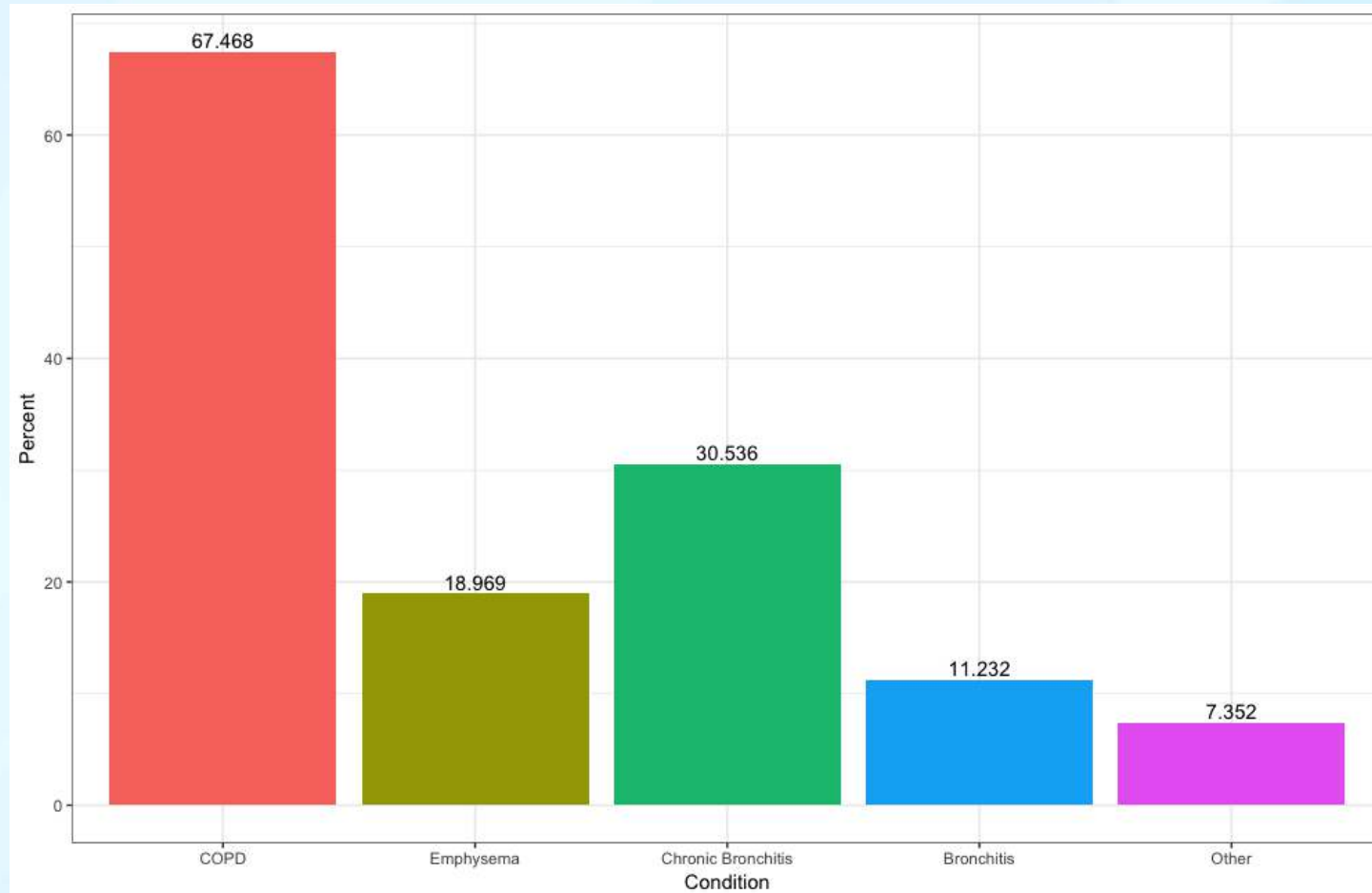
Which condition were you told you had? [Select All]

1. COPD
2. Emphysema
3. Chronic Bronchitis
4. Bronchitis
5. Something else

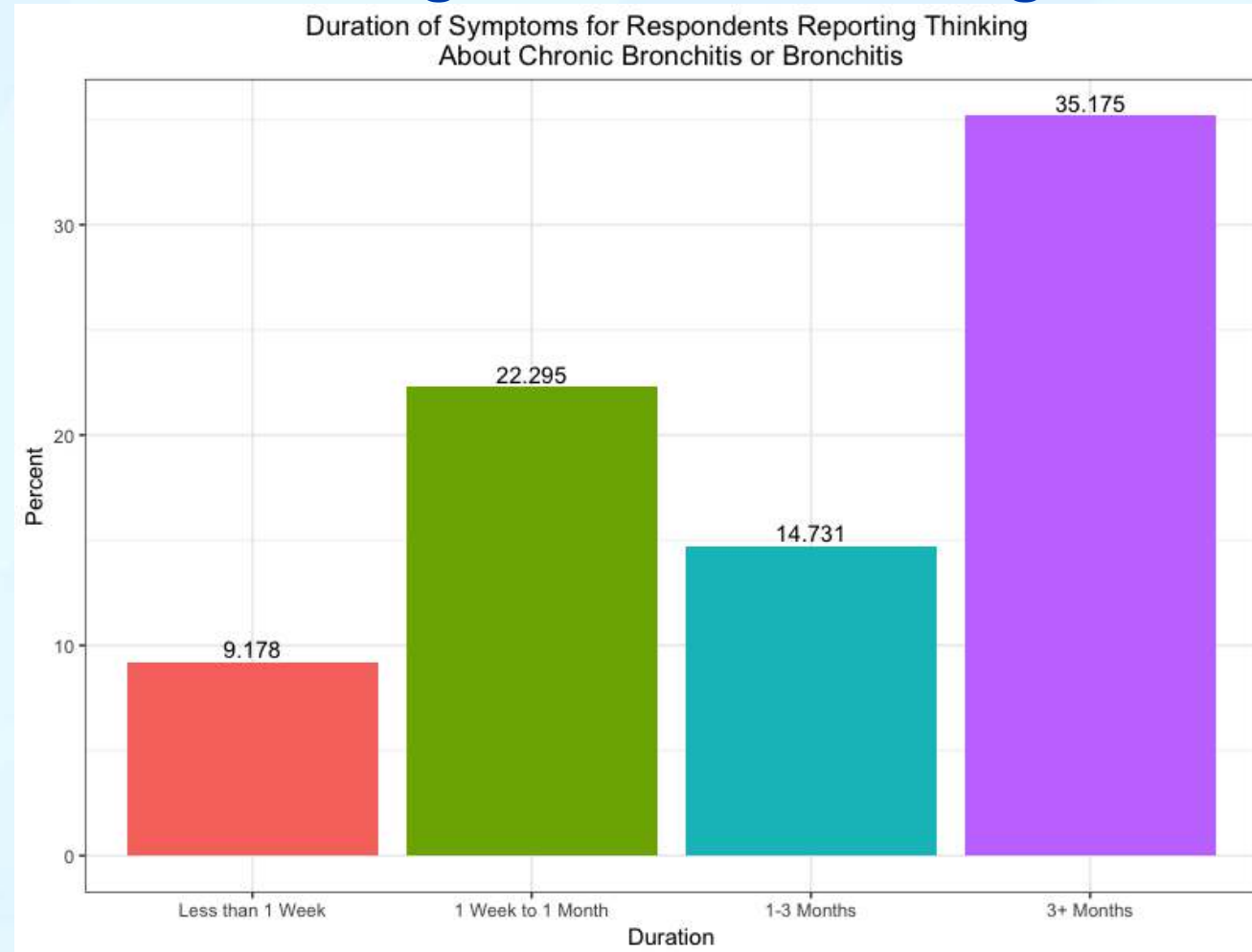
Thinking about the most recent time you had symptoms of Chronic Obstructive Pulmonary Disease or COPD, emphysema, or chronic bronchitis, how long did the symptoms last?

1. Less than one week
2. One week to one month
3. One month to three months
4. Three or more months

## Findings from Web Probing



## Findings from Web Probing



## An Example of this Mixed-Method Question Evaluation Process: The NHIS Lung Questions

Does the combined question capture the same constructs as the separate questions do?

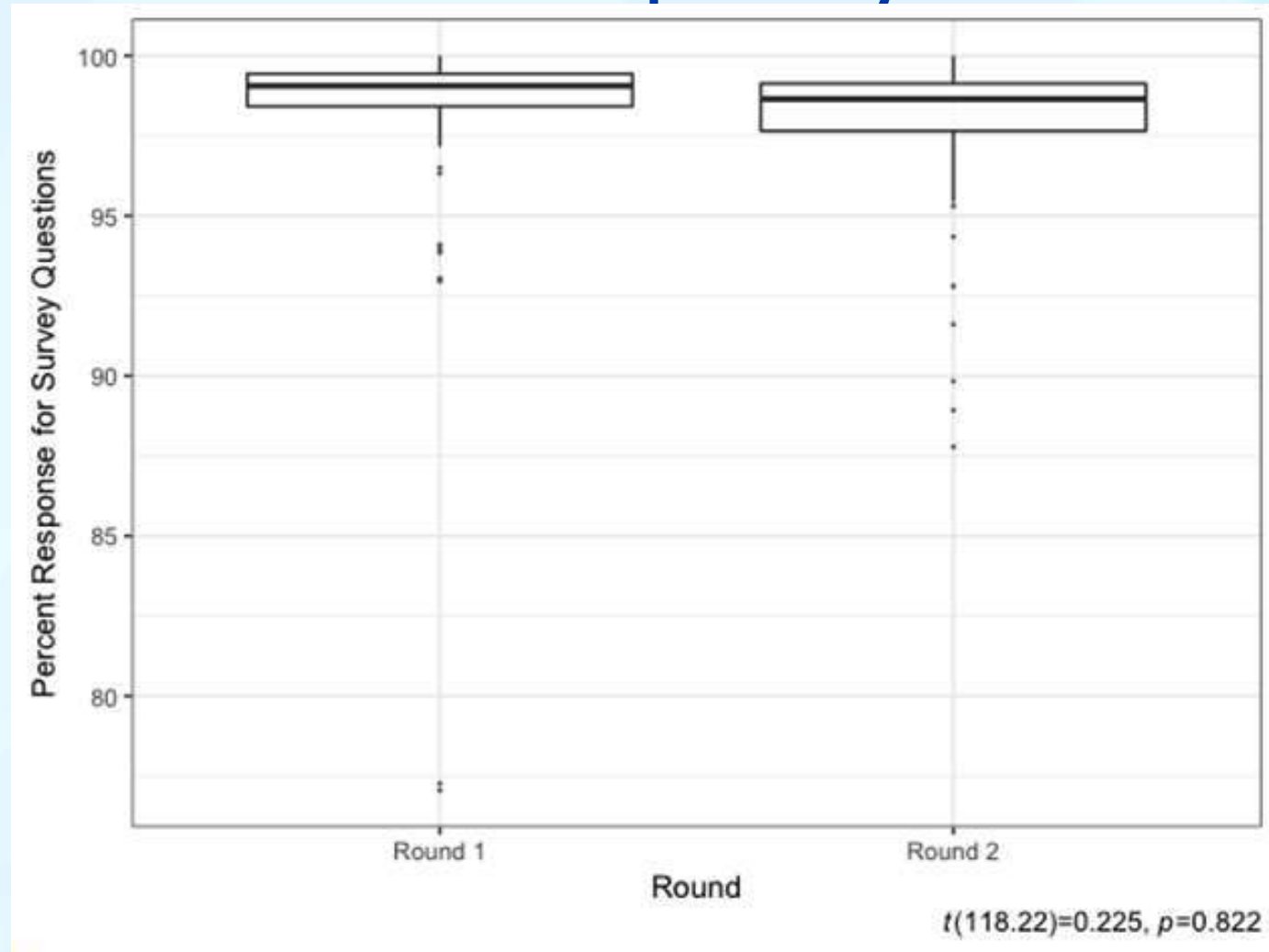
- **Cognitive Interviews indicate that combined question**
  - Does pick up the intended, in-scope constructs
  - Does not appear to capture out-of-scope “heart disease” or “acute bronchitis” constructs
- **Web probing used to see if this latter is just a function of the cognitive interviewing sample**
  - Only small percent of respondents use a potentially out-of-scope interpretation

## Methodological Considerations for the Use of Web Probes

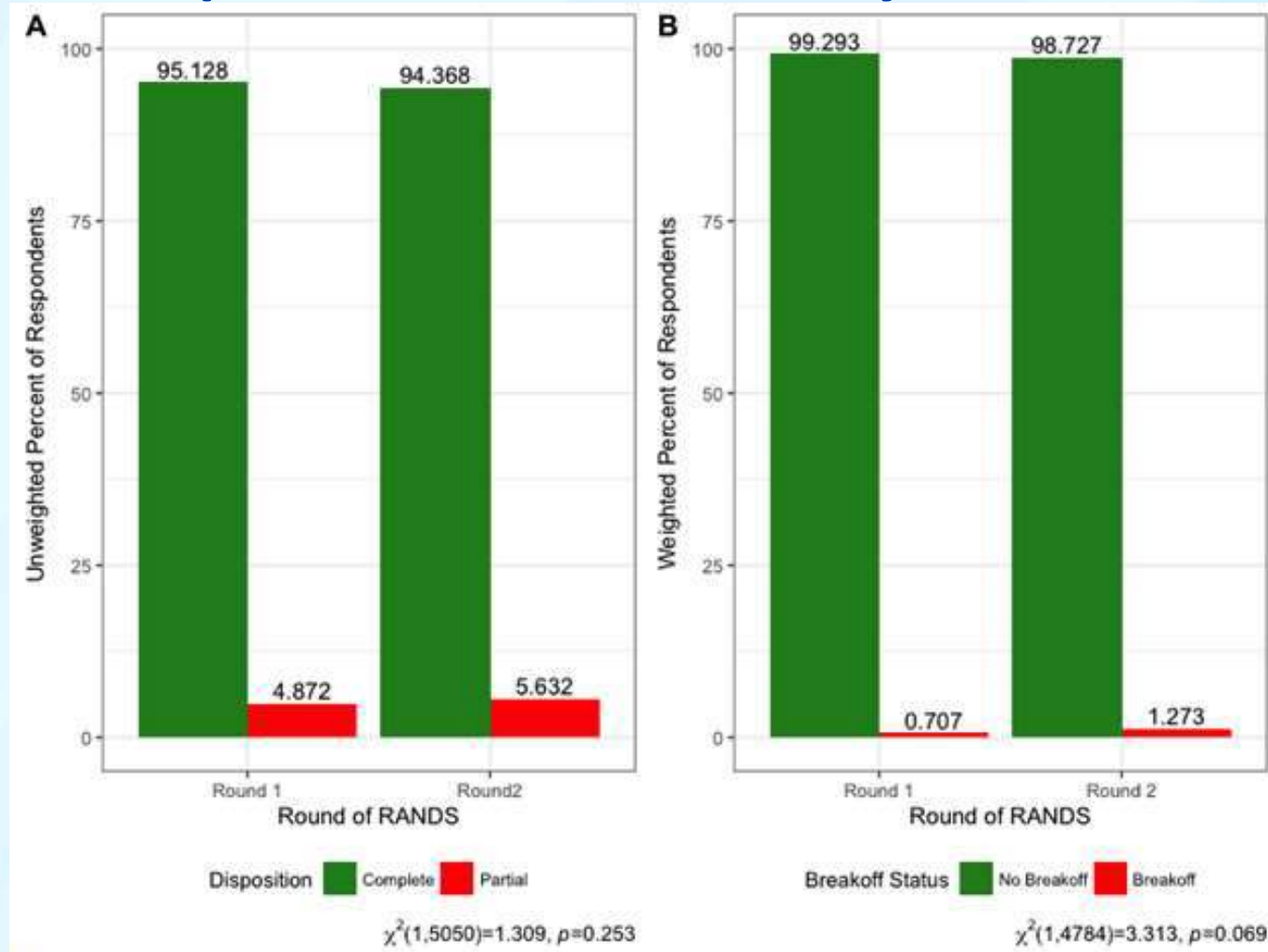
- One of the perceived drawbacks of adding cognitive probes to field tests is the idea that they will effect the performance of other survey items.
- By evaluating the response between Rounds 1 (without probes) and 2 (with probes) of RANDS, we find no evidence of this.
- Explored two areas:
  1. Probes' effects on overall response
  2. Probes' effects on response to other survey items



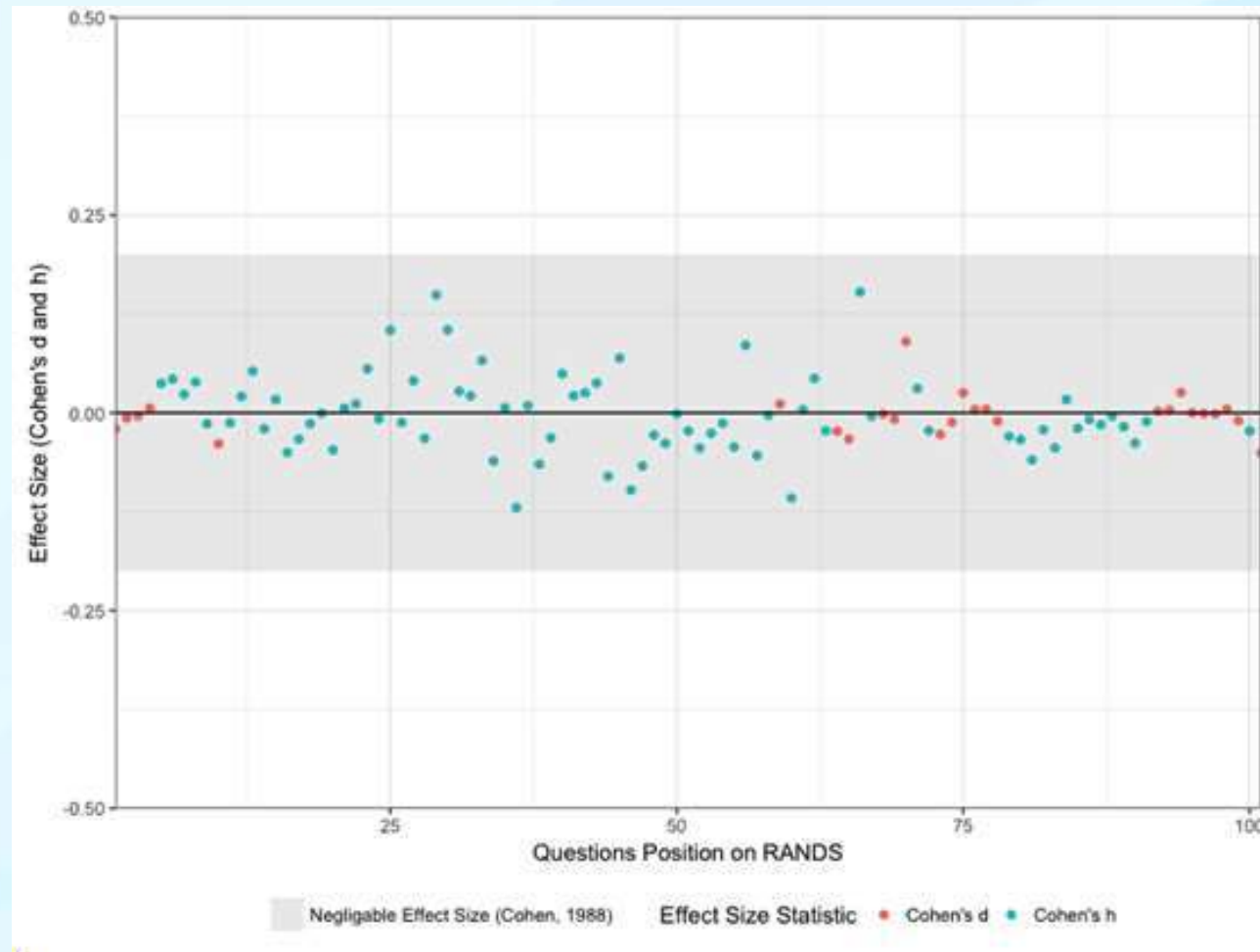
## Methodological Considerations for the Use of Web Probes: Overall Item Response by Round



## Methodological Considerations for the Use of Web Probes: Completion and Breakoffs by Round



# Methodological Considerations for the Use of Web Probes: Effects on Response to Other Items



**Thank you!**

**Paul Scanlon**  
**National Center for Health Statistics**  
**[pscanlon@cdc.gov](mailto:pscanlon@cdc.gov)**