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An Introduction to Mixed Methods

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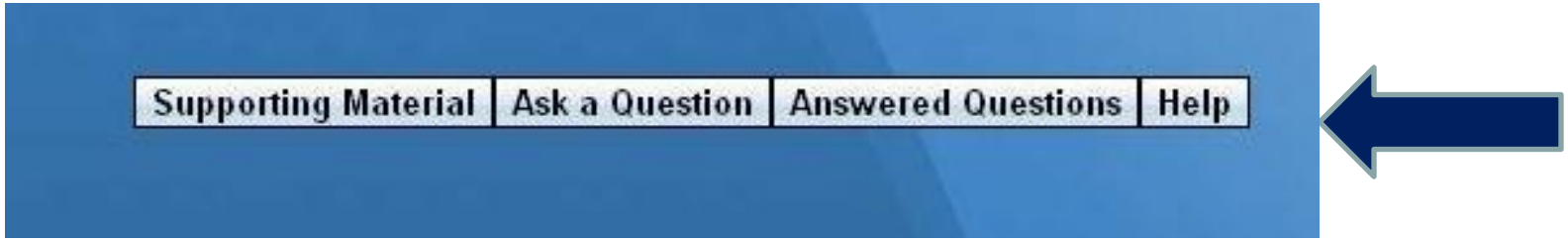

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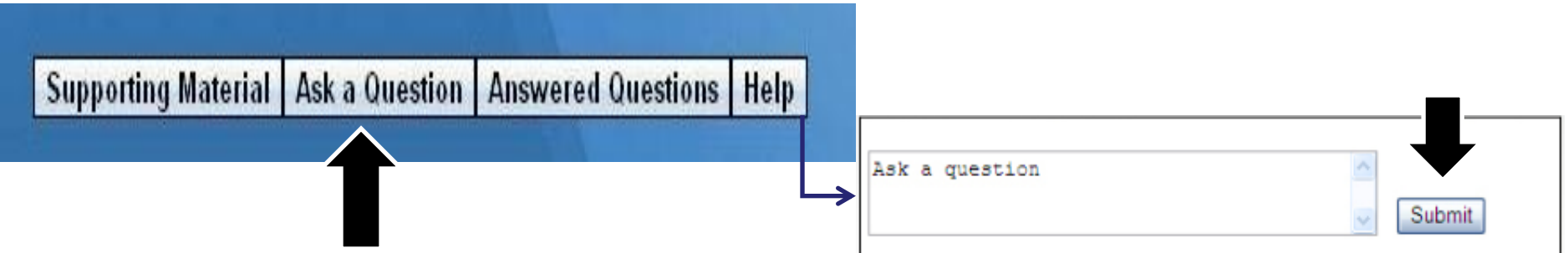

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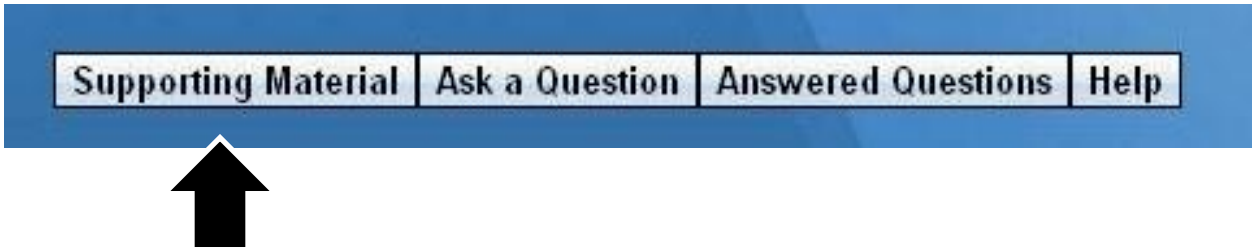

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Poll #1

- How many people are watching this webinar with you?
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  - 2-5 people are viewing this screen.
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MIXED METHODS IN PUBLIC HEALTH SERVICES RESEARCH

ACADEMY HEALTH WEBINAR
NOVEMBER 30, 2011

SHOSHANNA SOFAER, DR.P.H.
SCHOOL OF PUBLIC AFFAIRS, BARUCH COLLEGE
INSTRUCTOR

OVERVIEW

- Quantitative, qualitative and mixed methods – key differences
- When and why to use mixed methods (or not)
- Three ways to combine quantitative and qualitative methods
- Benefits of using mixed methods
- Challenges of using mixed methods

Poll #2

- What is your comfort level with mixed methods?
  - Very comfortable
  - Somewhat comfortable
  - Somewhat uncomfortable
  - Very uncomfortable
  - I don't know

DEFINING "MIXED METHODS"

- My definition: "Mixed methods" research involves the use of at least one quantitative data collection method and at least one qualitative data collection method, to answer the same overarching research question
- Some people use the term to describe studies which use different kinds of data collection that may be from only one of the major traditions (e.g. multiple qualitative methods)
- We will use my definition today

QUANT & QUAL – KEY DIFFERENCES

- The obvious difference – numerical v. textual data; numbers v. words (and images)
- Different traditions/epistemologies
  - **Quantitative: draws primarily from "hard sciences" and from "positivist" epistemology**
  - **Qualitative: draws from "social sciences" and history and from "grounded theory" epistemology**
  - **Abraham Kaplan – context of justification v. context of discovery – note that both are important**
- Concretely -- closed ended v. open ended questions

DATA COLLECTION OPTIONS

QUALITATIVE

- Primary
  - Key informant interviews
  - Cognitive interviews
  - Focus groups
  - Observation
- Secondary
  - Gathering documents or images

QUANTITATIVE

- Primary
  - Surveys with only or almost only closed-ended questions
  - Abstraction of discrete information from records
- Secondary
  - Using existing compendia of quantitative data

DATA COLLECTION OPTIONS

- In a mixed method study, you have, therefore, a very wide choice of data collection options and can combine them in a variety of ways
- These choices need to be driven by
  - **Your research question**
  - **The variables/topics related to your research question**
  - **What is already known and what is not about your variables/topics**
  - **Your research subjects and their likely response to different data collection methods**

DATA COLLECTION OPTIONS

Different combinations

- Using qualitative approaches to confirm or further explore existing quantitative data (secondary)
- Using both qualitative and quantitative methods to explore the same variables (primary)
- Using qualitative methods to explore some variables (e.g. independent variables) and quantitative methods to explore others (e.g. dependent variables)
- Using qualitative methods to identify key variables for further study

QUANT & QUAL – KEY DIFFERENCES

- Analyzing data
  - **Quantitative: focus on descriptive and inferential statistics**
    - Note desire for a large "n" and interval/ratio data whenever possible to widen range of available statistical tests and have a better chance of finding significance
  - **Qualitative: focus on identification of themes and patterns in language**
    - Can be very systematic and rigorous through use of formal coding of text as a basis for analysis
    - More "impressionistic" analysis is only appropriate when you have a small amount of data

DATA ANALYSIS IN MIXED METHODS

- It is unusual for qualitative and quantitative data to be analyzed together
- Typically, we use analytic methods appropriate to our data collection strategy
- Each of our analyses must, therefore, meet standards of rigor specific to the overall approach
- The key is actually how we
  - **Use each form of analysis**
  - **Integrate our INTERPRETATION of our analyses**

WHY USE MIXED METHODS?

- In health services research, this question is typically about why we should add *qualitative methods* to quantitative methods; in that case, you do this when:
  - **You have a question that has rarely been asked or has been asked with questionable results**
  - **You want the strength of multiple methods triangulation**
  - **Some, and only some, of your variables are easily quantifiable at this stage of inquiry**
  - **To "illuminate the black box" of relationships defined only in statistical terms**
  - **To hear from those who are rarely reached effectively by typical quantitative approaches**

WHY USE MIXED METHODS?

- But for qualitative researchers, the equally important question is, why add quantitative method; you may want to do this when
  - **You want to build on a base of existing quantitative data that is highly relevant to your research question AND**
  - **You trust it and can relatively easily gain access to it**
- OR
  - **You recognize that (for good reasons and bad) the credibility of your research will improve if you add numbers**
  - **Your goal is to build more valid and reliable quantitative measures and data collection instruments, such as surveys**

WHY USE MIXED METHODS?

How one method informs the other

- Even in a "purely" qualitative project, it is often wise to gather as much existing data about your site or respondent before you arrive
- In a more mixed project, qualitative data can help you identify and test alternative interpretations of quantitative findings, and vice versa

THREE MODELS OF MIXED METHODS

- Model One: Qualitative first, use results to refine study questions, think through or do sampling and develop measures
- Model Two: Qualitative and quantitative in tandem
- Model Three, Quantitative first, qualitative to explore results in depth and/or “in situ”

MODEL ONE -- EXAMPLE

- A recently completed study commissioned by AHRQ (with limited money and time)
- Colleagues are Judith Hibbard and Jessica Greene from University of Oregon
- Research question(s)
  - **Is there an effective and productive way to provide the public with comparative information on costs and resource use across different health care providers (e.g. physicians, hospitals)**
  - **If so, what works best, vis a vis:**
    - The measures used
    - The way the data are "framed" or "labeled"
    - The strength of the "quality signal" that accompanies the cost data

MODEL ONE -- EXAMPLE

- How is this a mixed methods study?
- Phases in the research:
  - **Literature search, including current cost reports**
  - **Expert/stakeholder interviews**
  - **Focus groups**
  - **Cognitive testing**
  - **Lab experiment: Web-based dissemination of alternative displays of data, with closed-ended surveys questions for each display and on each respondent**

MODEL ONE -- EXAMPLE

- Unit of analysis: individuals across all methods
- Sampling:
  - **Experts and stakeholders: Purposive**
  - **Focus Groups: Purposive, three groups of people insured through their employer, stratified by type of health insurance; tight specification of variations in age, gender, race/ethnicity, education/income levels; exclusion of people with a personal tie to health care/health insurance**
  - **Cognitive testing: Same as focus groups**
  - **Lab Study: Same as focus groups, but in a different market**

MODEL ONE -- EXAMPLE

- Comparison groups:
  - **Focus groups: stratified by type of insurance coverage: typical or high deductible**
  - **Lab Study: subjects randomly assigned to look at three different kinds of displays, with basically the same survey questions asked**
- Time frame:
  - **In all methods, we are doing concurrent, cross-sectional research**

MODEL ONE -- EXAMPLE

- Key variables
  - **In focus groups: participant responses to multiple preliminary displays of different kinds of cost and quality measures; ranking of different definitions of "high value" care**
  - **In lab study:**
    - Under which conditions did participants select providers that were either "low cost" when no quality data were provided or "high value" when both cost and quality data were provided
    - How confident were responses in their choices
    - How did choices and confidence vary by type of insurance, demographic factors, and level of patient/consumer activation

MODEL TWO -- EXAMPLE

- Current study – also funded by AHRQ – randomized trial of the use of "public deliberation" to get input from the public on comparative effectiveness research
- Lead organization – American Institutes for Research
- Multiple organizational and individual partners
- Probably the largest study ever done of public deliberation in health

MODEL TWO -- EXAMPLE

- Randomized trial of five different methods of doing public deliberation (on the same issue) against a control group and each other
- Study will involve over 1000 research subjects and over 60 public deliberation groups
- Sample will vary in terms of age, gender, race/ethnicity, educational level; will not include health professionals
- Major issue – how do we evaluate the process and outcomes of the deliberations?

MODEL TWO -- EXAMPLE

- Two parallel data collection and analysis efforts
- Quantitative: collection and analysis of pre- and post-survey of all subjects
  - **Demographics**
  - **Knowledge about comparative effectiveness research (CER)**
  - **Attitudes/beliefs toward CER and how it is used**
  - **Reports on experience in the deliberative groups (not for control group)**

MODEL TWO -- EXAMPLE

- Qualitative: taping and transcription of all groups followed by coding of transcripts
  - **Characteristics of the deliberative process**
  - **Range of points of view expressed**
  - **Extent of agreement/disagreement across groups**
- Ideally, we would have observed all groups (or a sample) using a structured observation protocol but resources were not available (even though budget is very large)

MODEL THREE EXAMPLE

- Proposed study of factors influencing choice of hospital for pregnant women in New York City
- PI is Dr. Elizabeth Howell, an OB/GYN and health services researchers from Mount Sinai School of Medicine; I am a methods consultant to the project
- Research questions:
  - **What structural factors and evidence-based practices explain variance in neonatal mortality in risk adjusted very low birth weight babies (VLBW) in NYC hospitals?**
  - **What factors and practices explain risk-adjusted racial/ethnic disparities in VLBW neonatal mortality rates in NYC hospitals?**
  - **What patient factors are associated with delivery location?**

MODEL THREE EXAMPLE

- Study builds on previous quantitative research using secondary data – New York State "SPARKS" data base (claims data)
- In the first (quantitative) phase of the study, the same data base will be used to rank order NYC hospitals by risk-adjusted VLBW neonatal mortality, examine distribution of white, Black and Hispanic births, and look at changes in ranking over time

MODEL THREE EXAMPLE

- Rankings will be used to generate a purposive sample (of very high and very low performers) for the rest of the study
- Next phases incorporate qualitative methods:
  - **Key informant interviews with hospital staff at the purposively selected hospitals to explore in greater depth efforts to maintain and improve quality vis a vis VLBW mortality, especially with respect to factors not available in the secondary data, e.g. evidence based practices not in the data base, culture around QI**
  - **Focus groups with women who have recently given birth to a VLBW baby in high and low performing hospitals, to explore their reasons for physician choice, hospital choice and related issues**

BENEFITS OF MIXED METHODS

- Allows you to use the most appropriate method for a particular research question, issue or study population
- Allows you to confirm, or disconfirm, the information you are getting from different methods and sources
- Generally leads to much higher quality measurement:
  - "Behind every quantity there must lie a quality"
- You can address not only "what" but "how" and even "why"

BENEFITS OF MIXED METHODS

- Supports interdisciplinary work: by including multiple methods, it is easier to engage a range of clinicians and social scientists in your work
- Provides, for purposes of dissemination, a compelling mix of “the numbers” and “the stories that humanize the numbers”

CHALLENGES IN MIXED METHODS

Pulling together the right research team

- Need all methods represented strongly
- Need everyone to be
  - **Respectful of the other method**
  - **Willing to learn about the other method**
- This is likely to mean an interdisciplinary team
- The alternative is for someone with expertise in one area to "go it alone" on an unfamiliar method
  - **High risk approach, but sometimes there is no alternative**

CHALLENGES IN MIXED METHODS

Coordinating efforts as needed

- This implies good leadership/management
- Regular interactions/communications
- Most likely, realistically, slightly more resources because many people cannot "silo" themselves

CHALLENGES IN MIXED METHODS

Dealing with anomalies in the results

- What if you are using multiple methods to look at the same general issues (Model 2) AND
- You get different results depending on the methods
- This is “the elephant in the room”

CHALLENGES IN MIXED METHODS

Dealing with anomalies in the results

- Sometimes requires re-examination of every step in the research process to see if an explanation can be found in terms of methodological rigor
- Sometimes, however, reflects a reality that depending on how something is looked at (perspective) it looks different – the parable of the five blind men using touch alone to describe an elephant
- What other explanations/solutions are there?

CHALLENGES OF MIXED METHODS

- Requires access to expertise of very different kinds
- Requires team members to learn each others' language and come to respect each other
- Typically takes more resources and time
- And then there's the nightmare: Your quantitative and qualitative results are not just different, but actually in conflict!
  - **This can rarely be resolved without additional research, unless there have been serious flaws on one side or the other**

Submitting Questions

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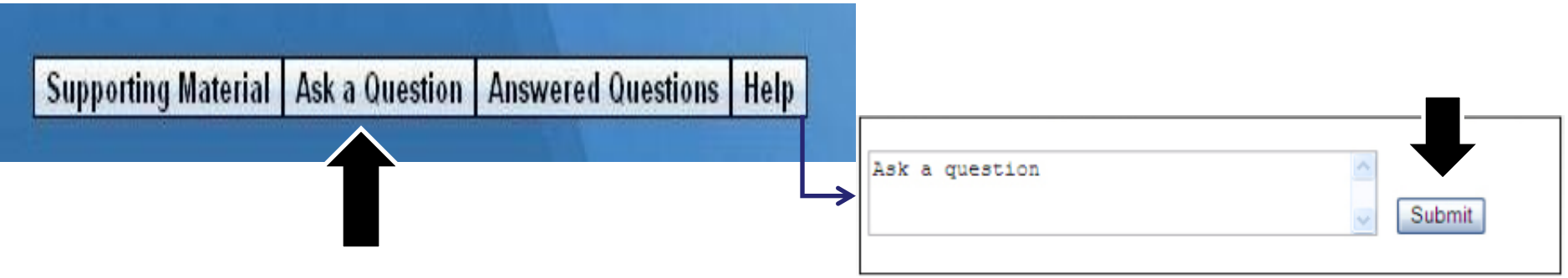

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Upcoming Events

- *Analyzing Natural Experiments: A Public Health Methods Webinar*
  - December 14, 2:00-3:30 pm ET
  - www.academyhealth.org/PHSR
- Mixed Methods Parts 2 & 3
  - Winter 2012
  - **www.academyhealth.org/edcatalog**

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