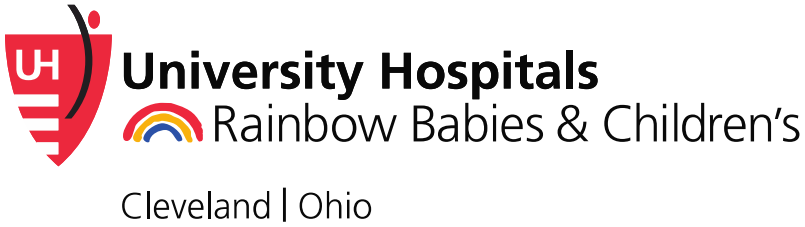
Introduction to Qualitative and Mixed Methods in Implementation and QI Research

APA Quality Improvement Meeting, Washington DC

April 28, 2023



Today's Facilitators

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Conflict of Interest Statement

We have no financial or other conflicts of interest to report

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  - Joe Gallow
  - John Creswell
  - Charles Deutsch

By the end of this session, we aim for you to be able to:

Recognize the relative strengths and potential applications of qualitative data for QI and IS

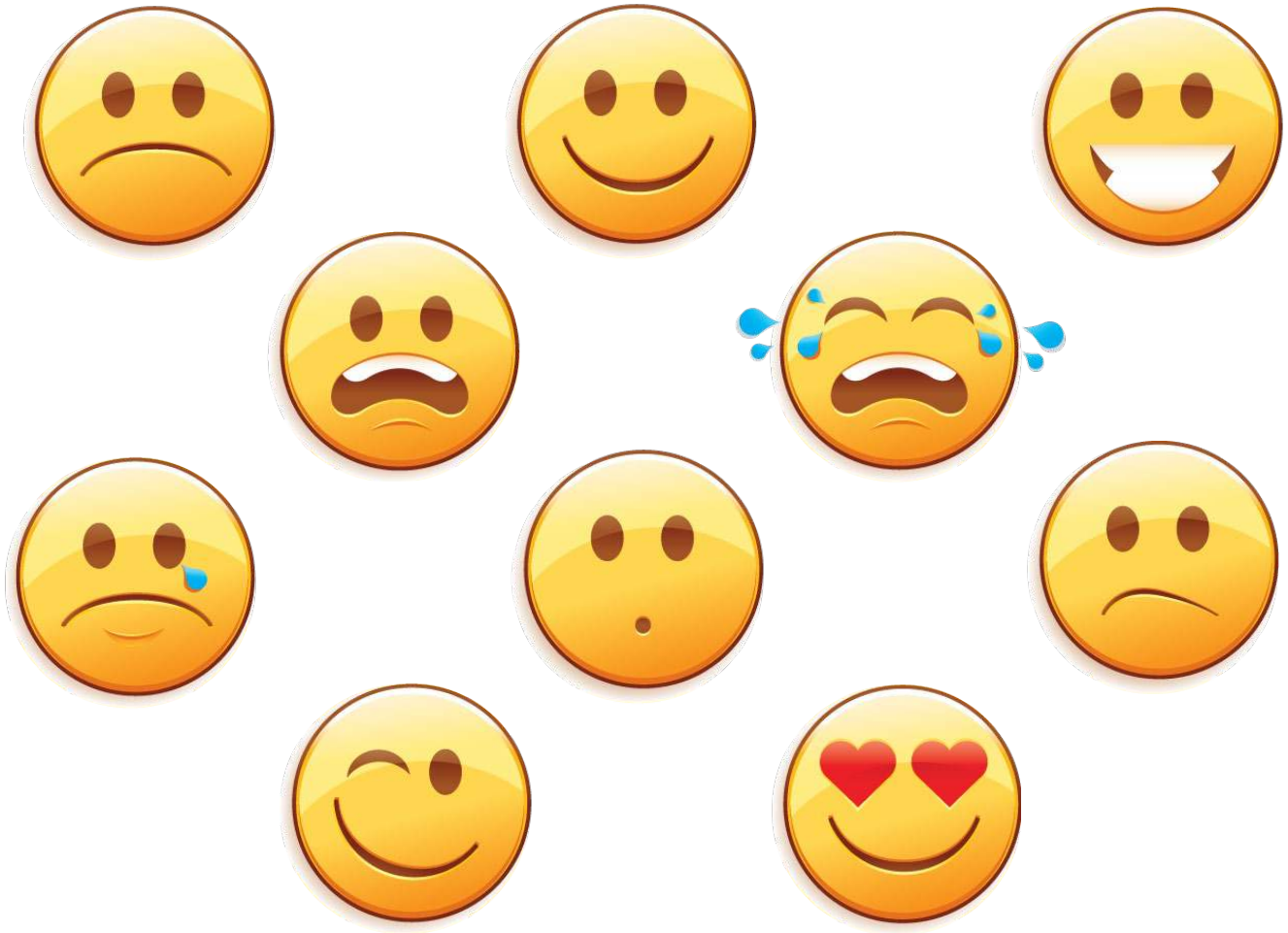
Identify three “core” mixed methods study designs

Describe key considerations and pitfalls when designing a qualitative or mixed methods project

Agenda

Qualitative Methods	What they are, what they bring to QI and Implementation Research
Mixed Methods	Suggestions regarding how to merge or integrate qualitative and quantitative data
Applications/Real world examples	

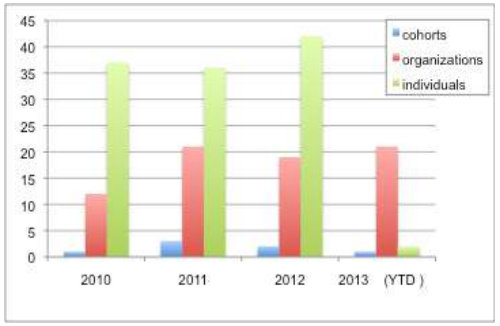
Describe your experiences with qualitative methods



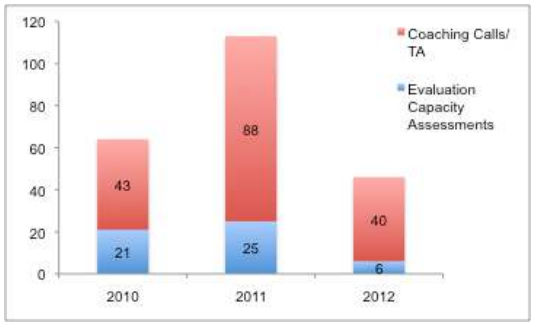
Quantitative data is…

… data expressing a certain quantity, amount, or range

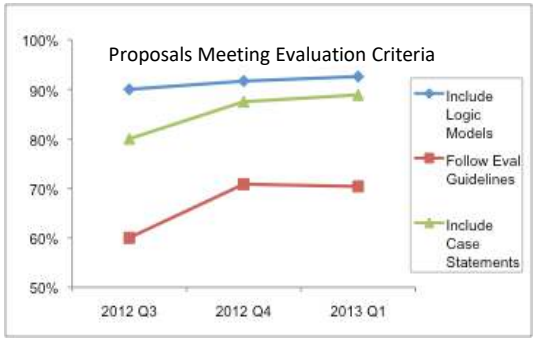
Expanding Reach



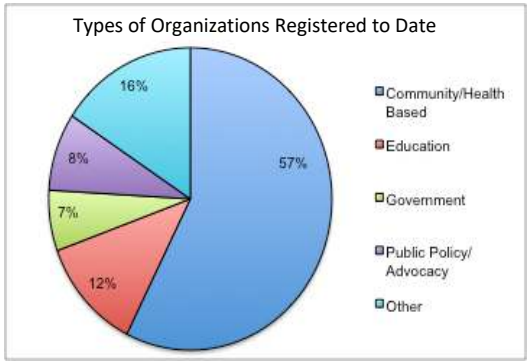
Services Provided

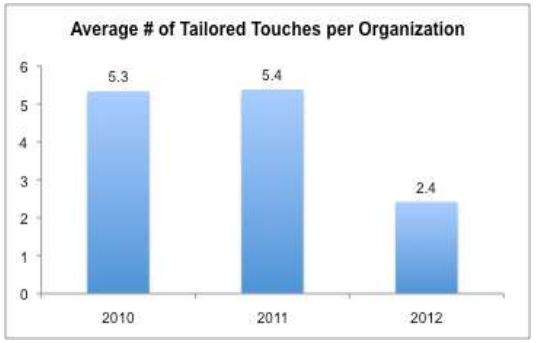


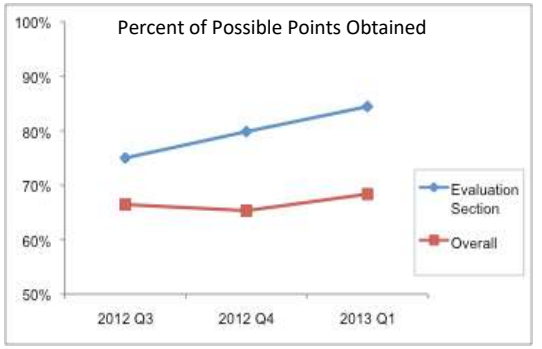
Improved Proposals & Reports

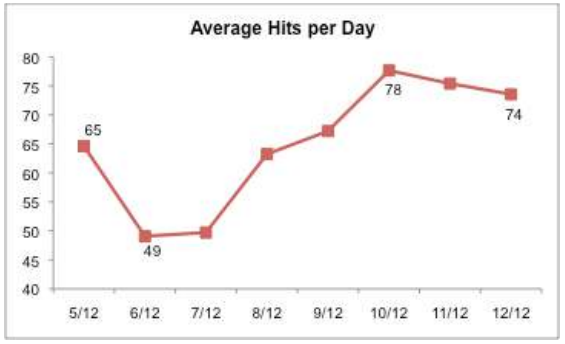


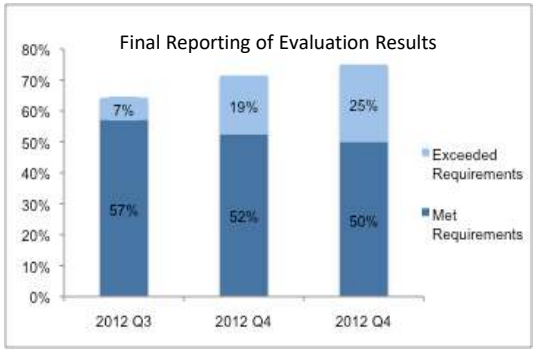
Increased Website Use









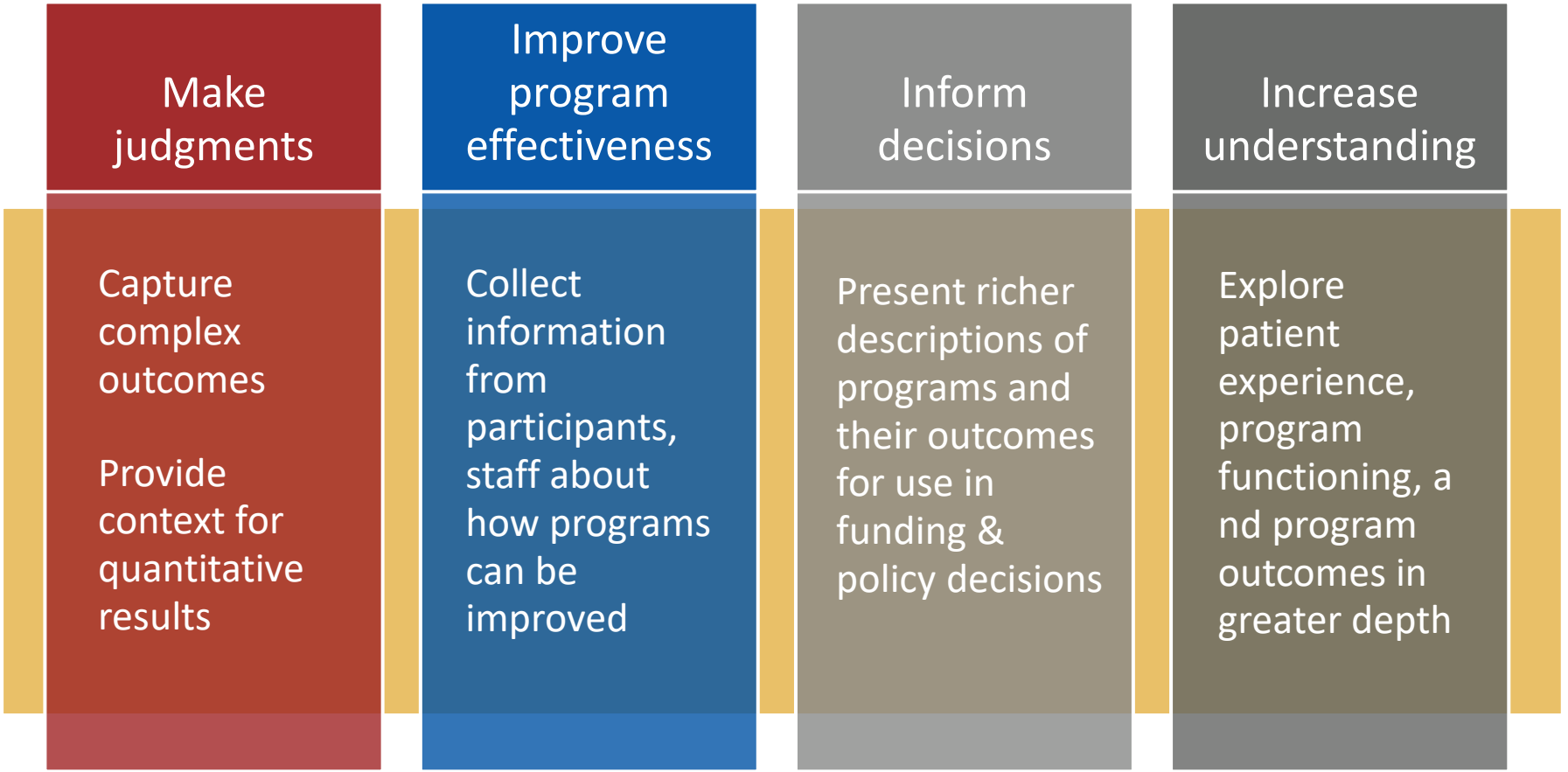


Qualitative data is …

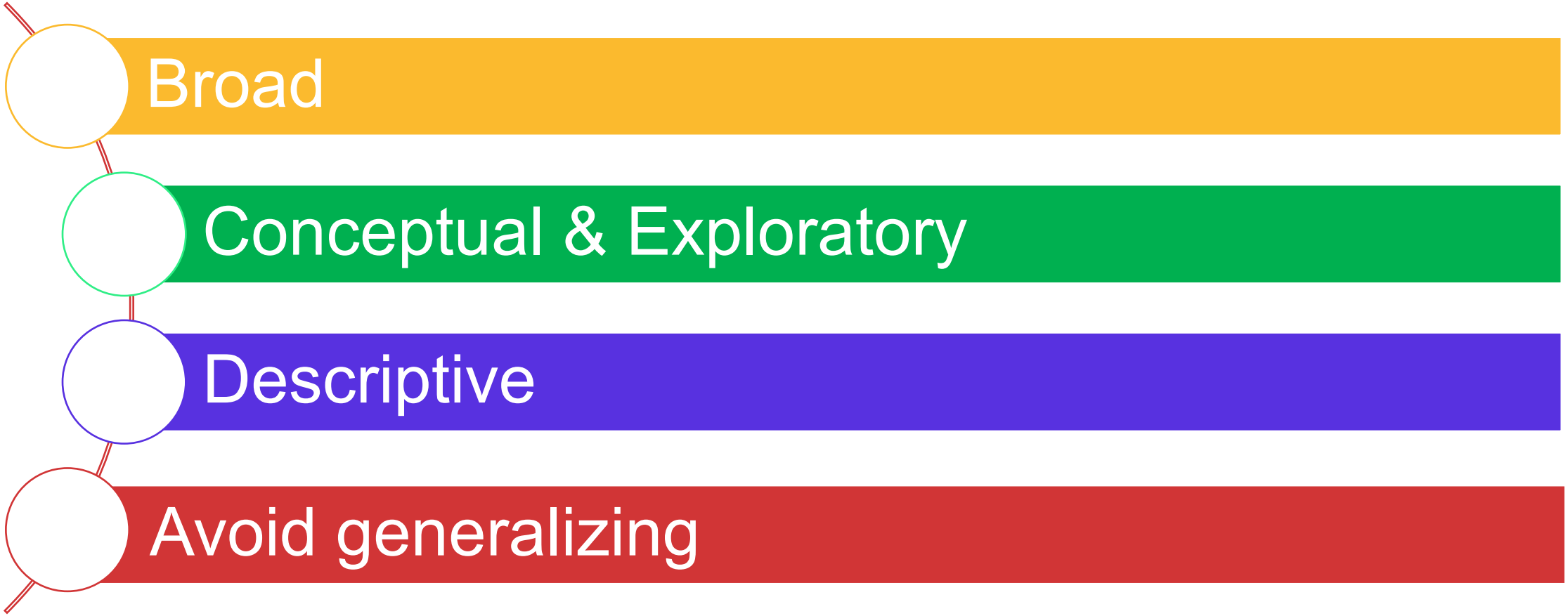
… everything else: brief text, narratives, interviews, observational descriptions, stories, photos, videos

	Quantitative	Qualitative
General Framework	• Confirm hypothesis • Highly structured data collection methods	• Explore phenomenon • Semi-structured data collection methods
Analytic Objectives	• Quantify variation • Predict causal relationships • Generalize to a population	• Describe variation • Describe relationships and individual experiences • Generate insights and/or hypotheses
Question Format	• Closed-ended	• Open-ended
Data format	• Numbers	• Text
Flexibility	• Low	• High
Sample Size & Generalizability	• Large, random & generalizable	• Purposive and generative

Qualitative data can help you to:



How are qualitative research questions different?



EXERCISE

Based on your case scenario, develop 1-2 research/ evaluation questions

Discuss with your neighbors:

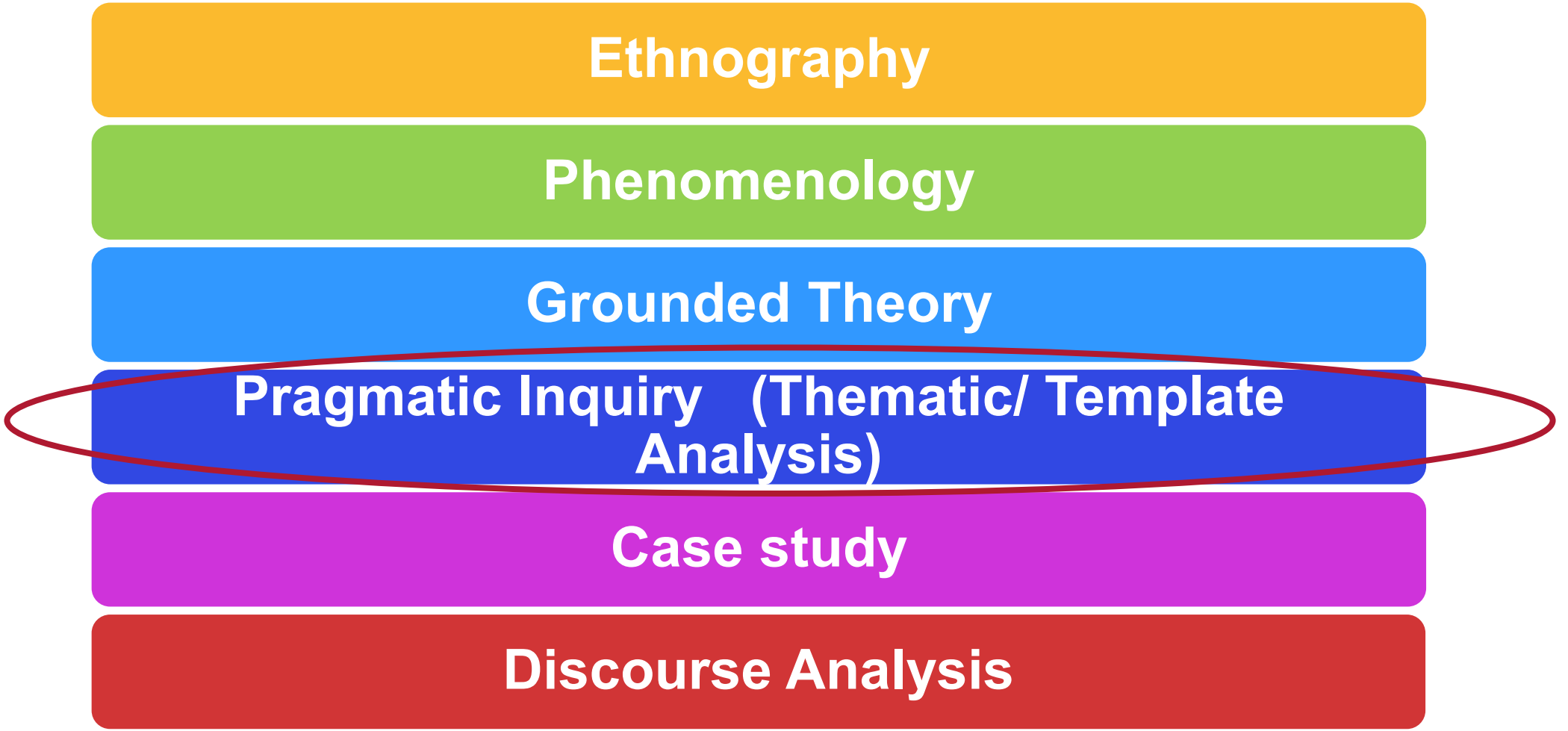
- What makes your questions qualitative vs. quantitative?
- How are your questions similar?
- How are they different?

Methodologies and Frameworks

"Frameworks are like toothbrushes. Everyone has one and no one wants to use anyone else's"

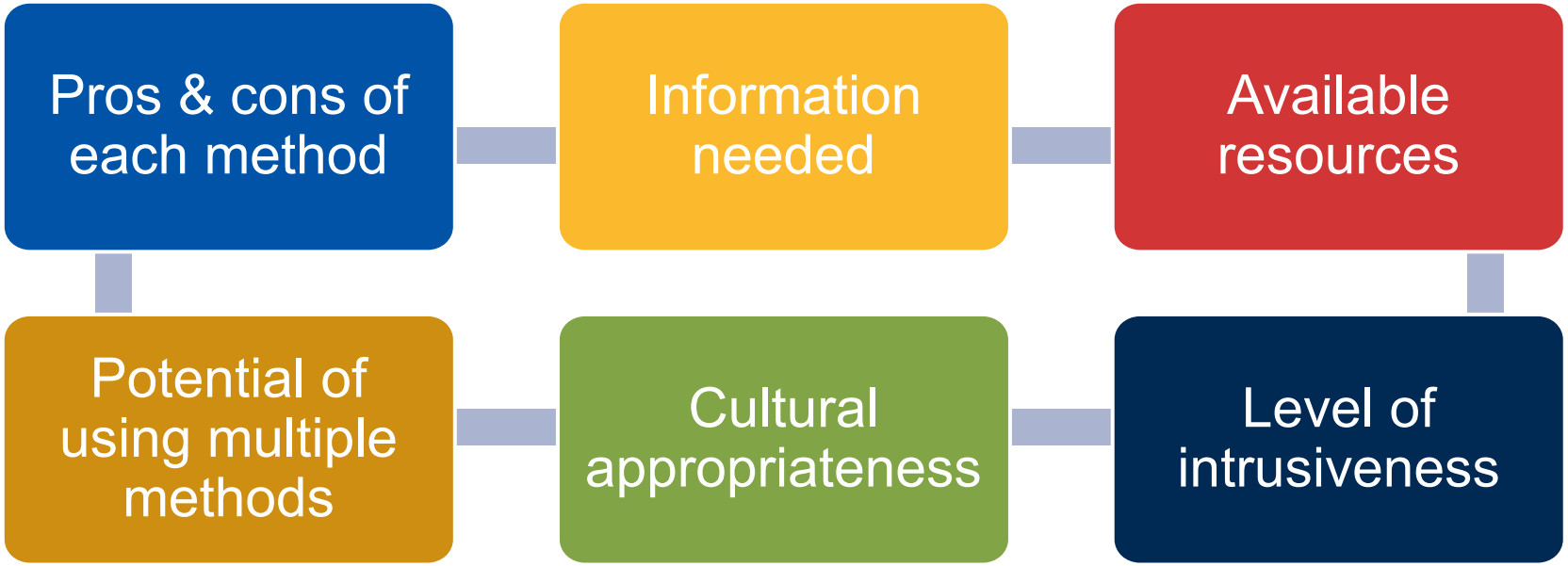
- Christian Schunn (2001)

Methodologies and Frameworks




Interview
Observation
Focus group
Document & chart review
Expert or peer review
Testimonials
Secondary data review
Visual media
Tests
Logs, registries, journals
Case study
Survey

Selecting methods



Selecting participants

Selecting participants

Other logistics

- IRB
- Recording
- Transcription
- Data Storage
- Translation

Basics of qualitative data analysis

Organize

- Assign unique ID's (data protection)
- Read & re-read (immersion)
- Plan (build team)

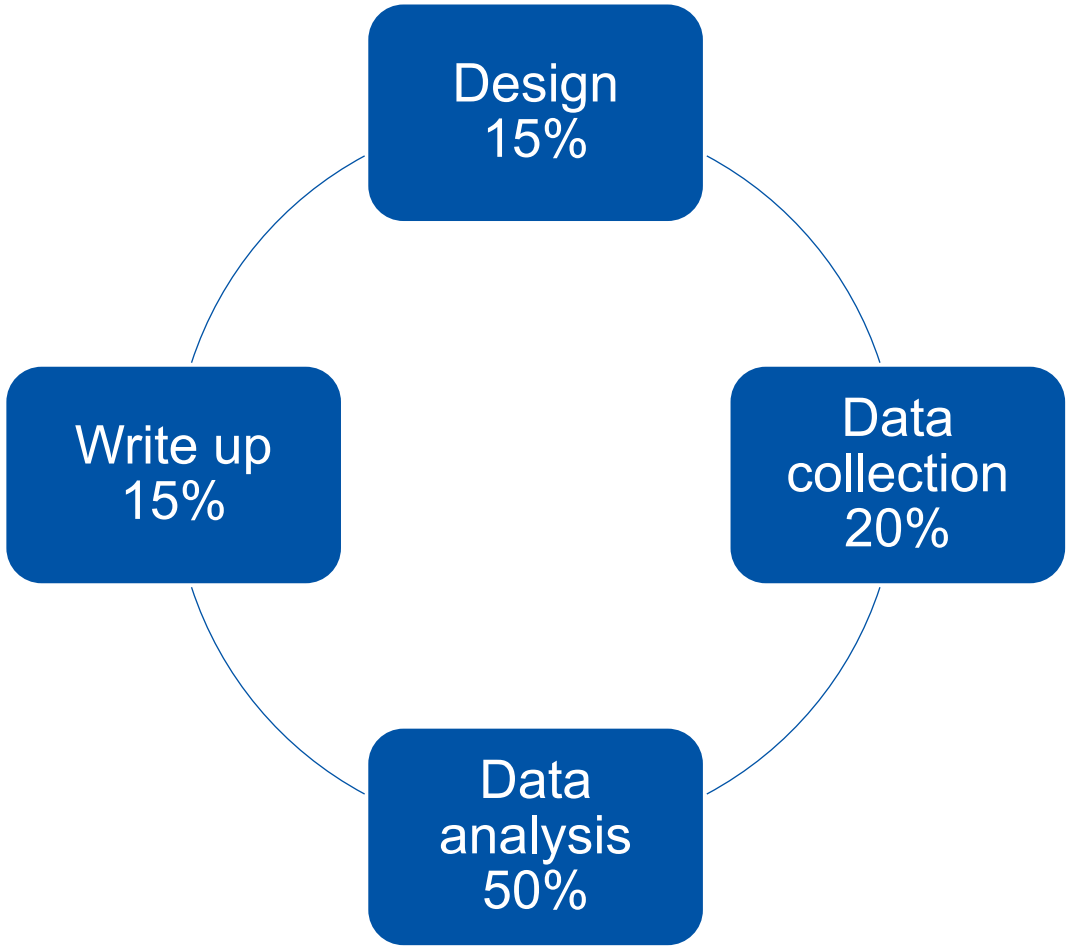
Analyze

- Read again
- Develop codes
- Iterative checking
- Identify patterns & connections

Interpret

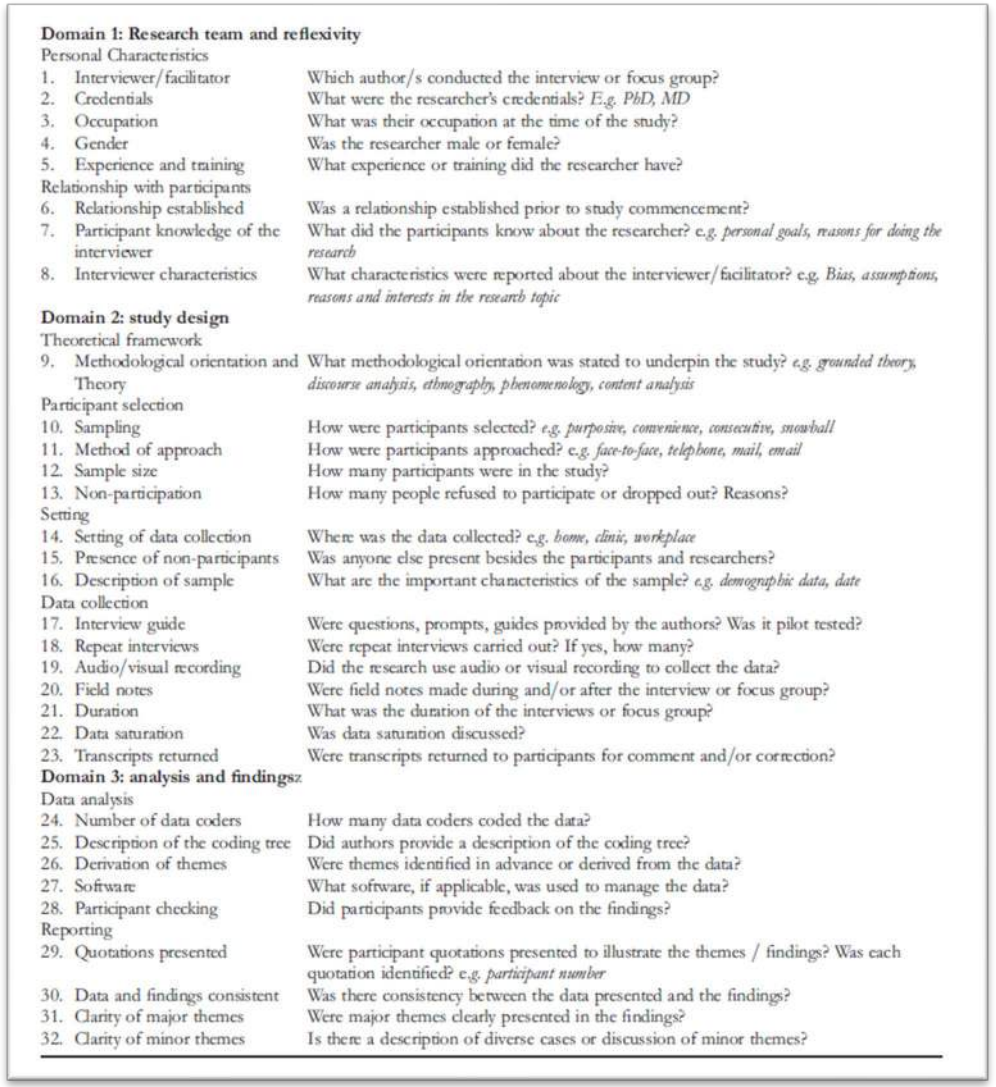
- Coding memos
- Provide documentation
- Organize key themes & findings

Effort Breakdown



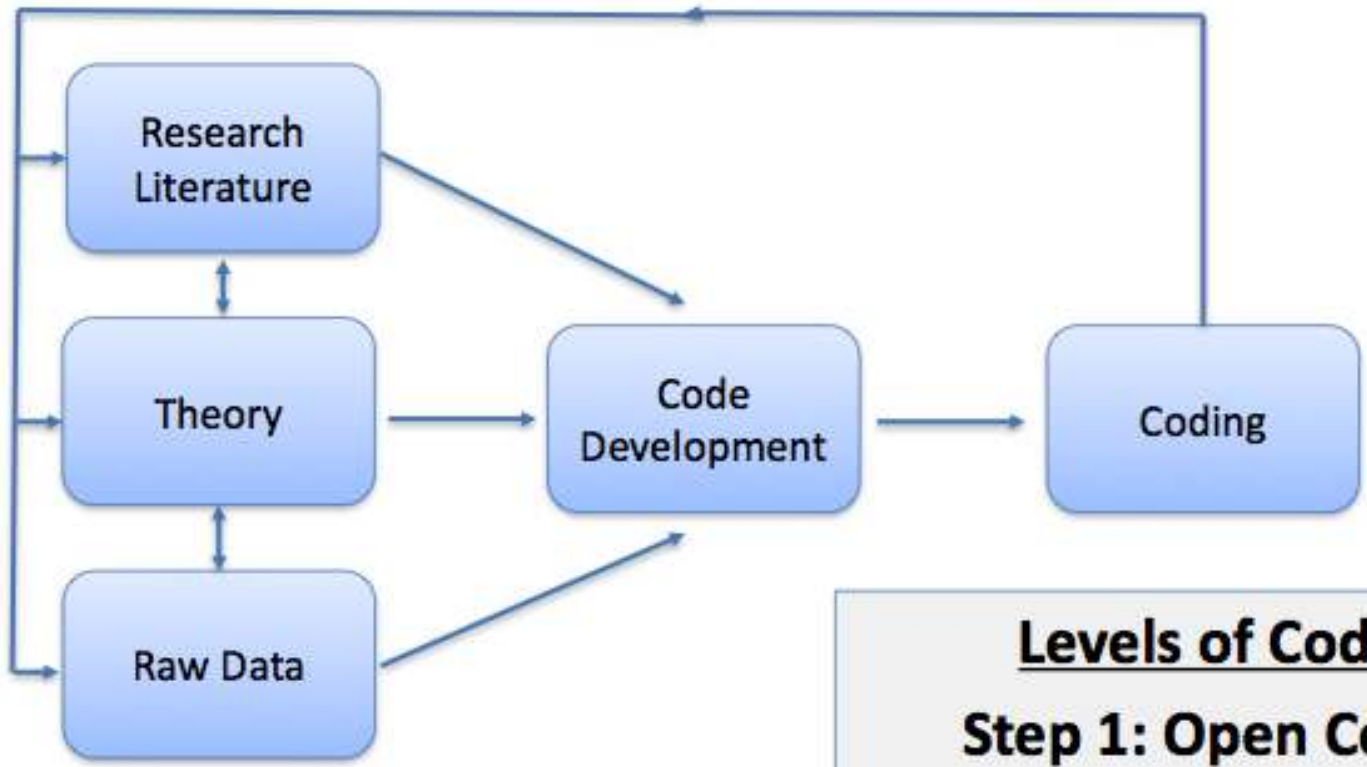
Reporting qualitative data

- Qualitative research standards (SRQR, COREQ)
- Validity
- Subjectivity/Bias
- Transparency



Domain 1: Research team and reflexivity	
Personal Characteristics	
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?
2. Credentials	What were the researcher's credentials? *E.g. PhD, MD*
3. Occupation	What was their occupation at the time of the study?
4. Gender	Was the researcher male or female?
5. Experience and training	What experience or training did the researcher have?
Relationship with participants	
6. Relationship established	Was a relationship established prior to study commencement?
7. Participant knowledge of the interviewer	What did the participants know about the researcher? *e.g. personal goals, reasons for doing the research*
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? *e.g. Bias, assumptions, reasons and interests in the research topic*
Domain 2: study design	
Theoretical framework	
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*
Participant selection	
10. Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*
11. Method of approach	How were participants approached? *e.g. face-to-face, telephone, mail, email*
12. Sample size	How many participants were in the study?
13. Non-participation	How many people refused to participate or dropped out? Reasons?
Setting	
14. Setting of data collection	Where was the data collected? *e.g. home, clinic, workplace*
15. Presence of non-participants	Was anyone else present besides the participants and researchers?
16. Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*
Data collection	
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?
20. Field notes	Were field notes made during and/or after the interview or focus group?
21. Duration	What was the duration of the interviews or focus group?
22. Data saturation	Was data saturation discussed?
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?
Domain 3: analysis and findingsz	
Data analysis	
24. Number of data coders	How many data coders coded the data?
25. Description of the coding tree	Did authors provide a description of the coding tree?
26. Derivation of themes	Were themes identified in advance or derived from the data?
27. Software	What software, if applicable, was used to manage the data?
28. Participant checking	Did participants provide feedback on the findings?
Reporting	
29. Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? *e.g. participant number*
30. Data and findings consistent	Was there consistency between the data presented and the findings?
31. Clarity of major themes	Were major themes clearly presented in the findings?
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?

Circular Coding Process



Levels of Coding

Step 1: Open Coding
(Basic categories)

Step 2: Axial Coding
(Connections between codes)

Adapted from DeCuir-Gunby, et al. (2011)

Coding Process: Codebook Creation

Code	Description	Example
Satisfaction	Satisfaction with amount or type of exercise. Also applies to enjoyment of exercise. Can be used positively (am satisfied) or negatively (am not satisfied).	"I wish I could exercise more." / "A lot of my exercise was fun, so I enjoyed it. It didn't feel like exercise."
Reasons for exercise	Reasons participants choose to exercise, or would like to exercise more. Use for reasons that influence long term or short term exercise goals. Do not use for motivational factors that might influence a person to workout on any given day.	"It makes me feel a lot better, emotionally as well as physically. And then...the health benefits are up there"
Motivation to exercise	Drive to engage in exercise. Applies to factors that cause a participant to follow through on their intention to exercise. Can be used positively (am motivated) or negatively (am not motivated).	"...after a long day of work I just don't feel like going"
Barriers	Factors that keep a participant from exercising. Applies to people, e.g. family members who discourage exercise, or situations, e.g. lack of time to exercise.	"Well, since I'm kinda in the process of moving I cancelled my gym membership. So with that I haven't really been exercising."
Facilitators	Factors that enable exercise. Applies to people, e.g. family members who encourage exercise, or situations, e.g. access to a gym.	"I have a little bit more time on my schedule to be able to go to the gym and pay for my gym membership " / "when I was living with a roommate, we...had a fairly consistent workout routine"

Oklahoma Shared Clinical & Translational Resources (2017)

Mixed Methods Research is:

The combination of “qualitative and quantitative research approaches for the broad purposes of breath and depth of understanding and corroboration”

- Johnson, Onwuegbuie, and Turner (2007)

Key questions when considering mixed methods:

- Aims/Goals?
- Relative timing of QUAN and QUAL components?
- Strategy for integrating QUAN and QUAL data?

Question #1: What are your aims?

- Quantitative aim
- Qualitative aim
- Mixed aim = goal for integrating data

EXERCISE

Using your qualitative research question as a starting point, write a mixed methods question using one of the following verbs:

- Build
- Design
- Follow-up
- Compare
- Develop
- Understand
- Contrast
- Explain
- Validate

Question #2: Relative Timing of Components?

- Concurrent

- Sequential

Question #3: Strategy for integration?

- **Merged** – after both QUAN and QUAL collection and analysis are completed
- **Connected** – one type of data builds upon the other
- **Embedded** – secondary method/question supports primary question (eg. Intervention trial)

Mixed Methods Designs

Convergent

Exploratory Sequential

Explanatory Sequential

= Core Designs

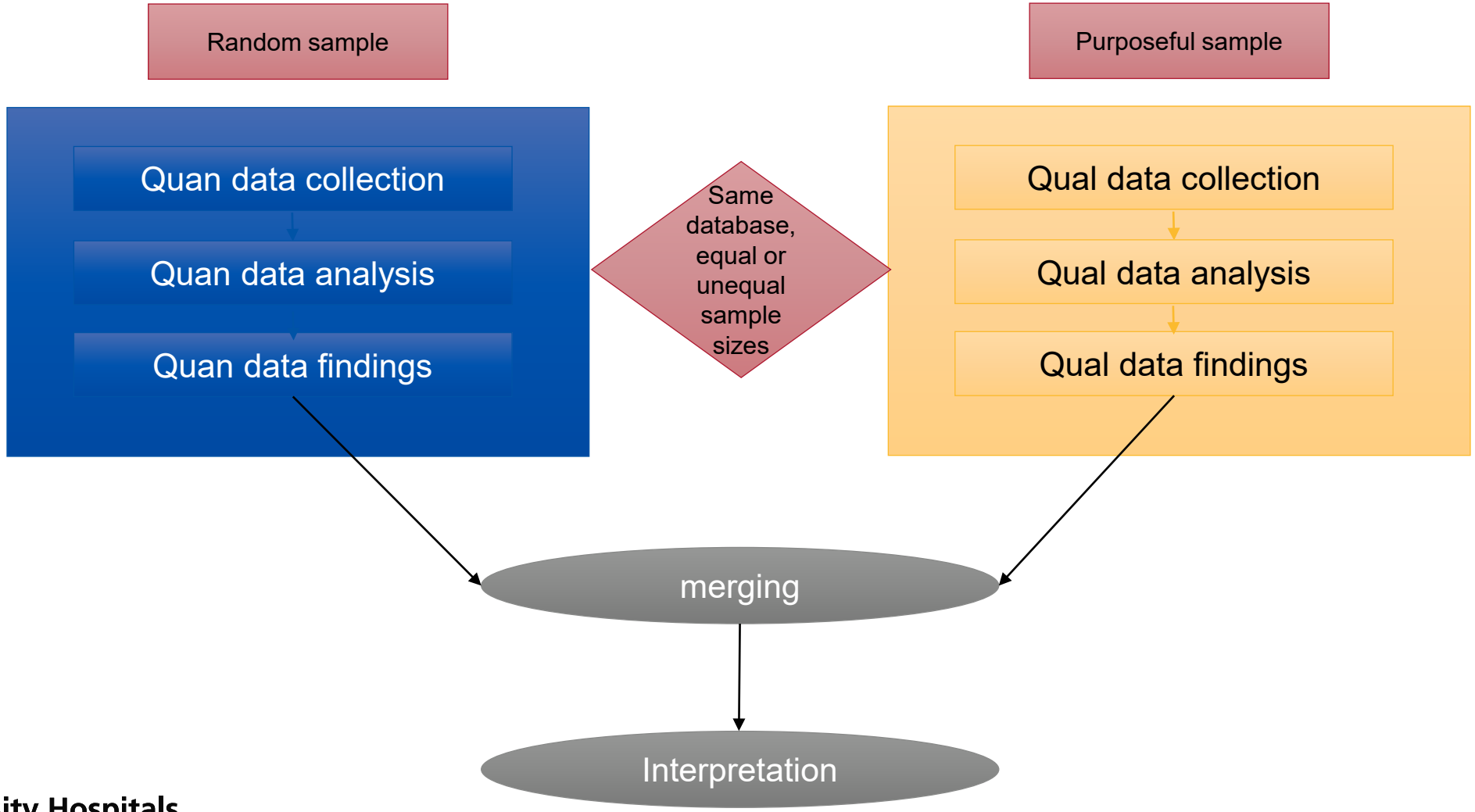
Program Evaluation

Intervention Trial

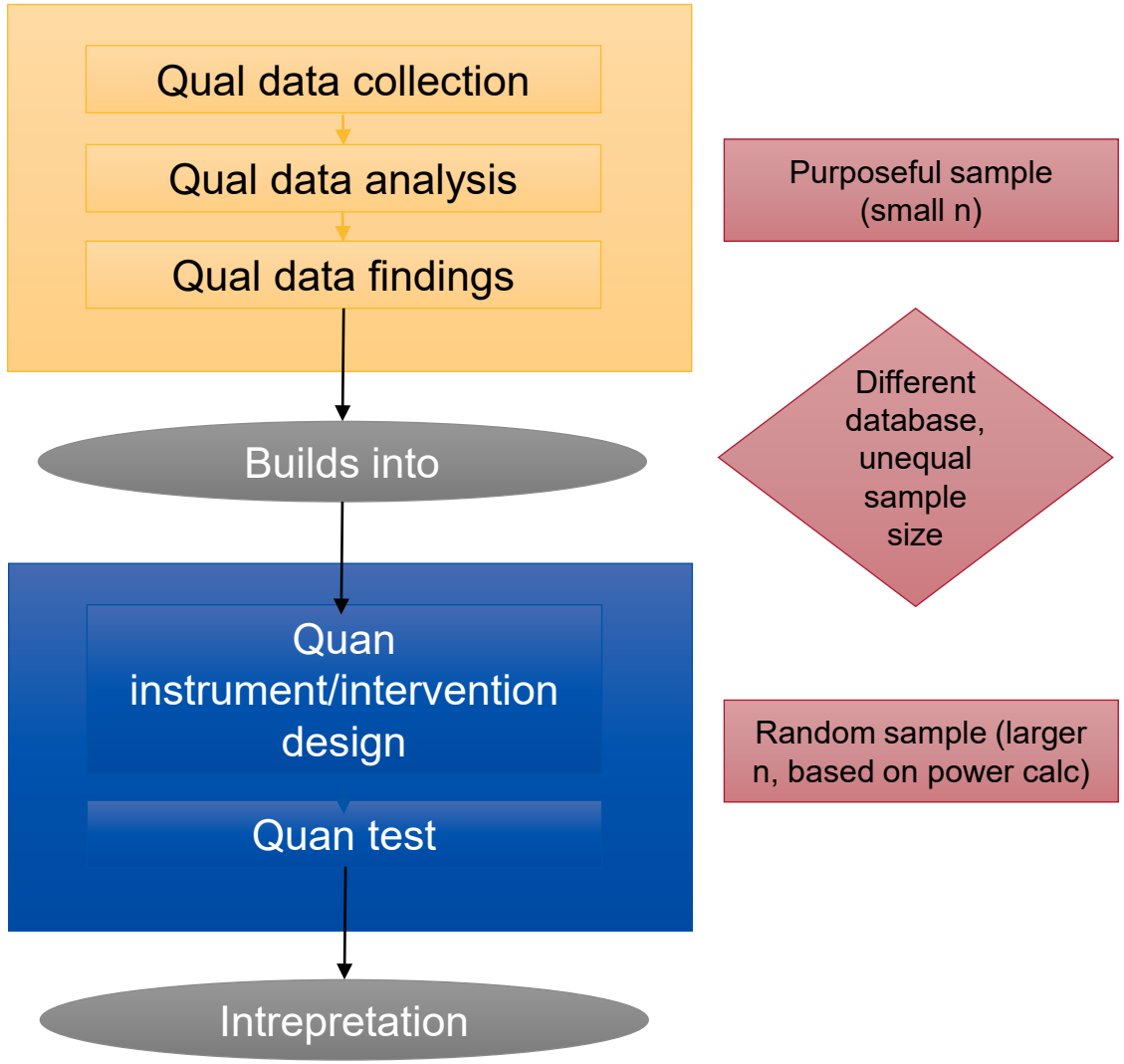
Case Study

Participatory Research

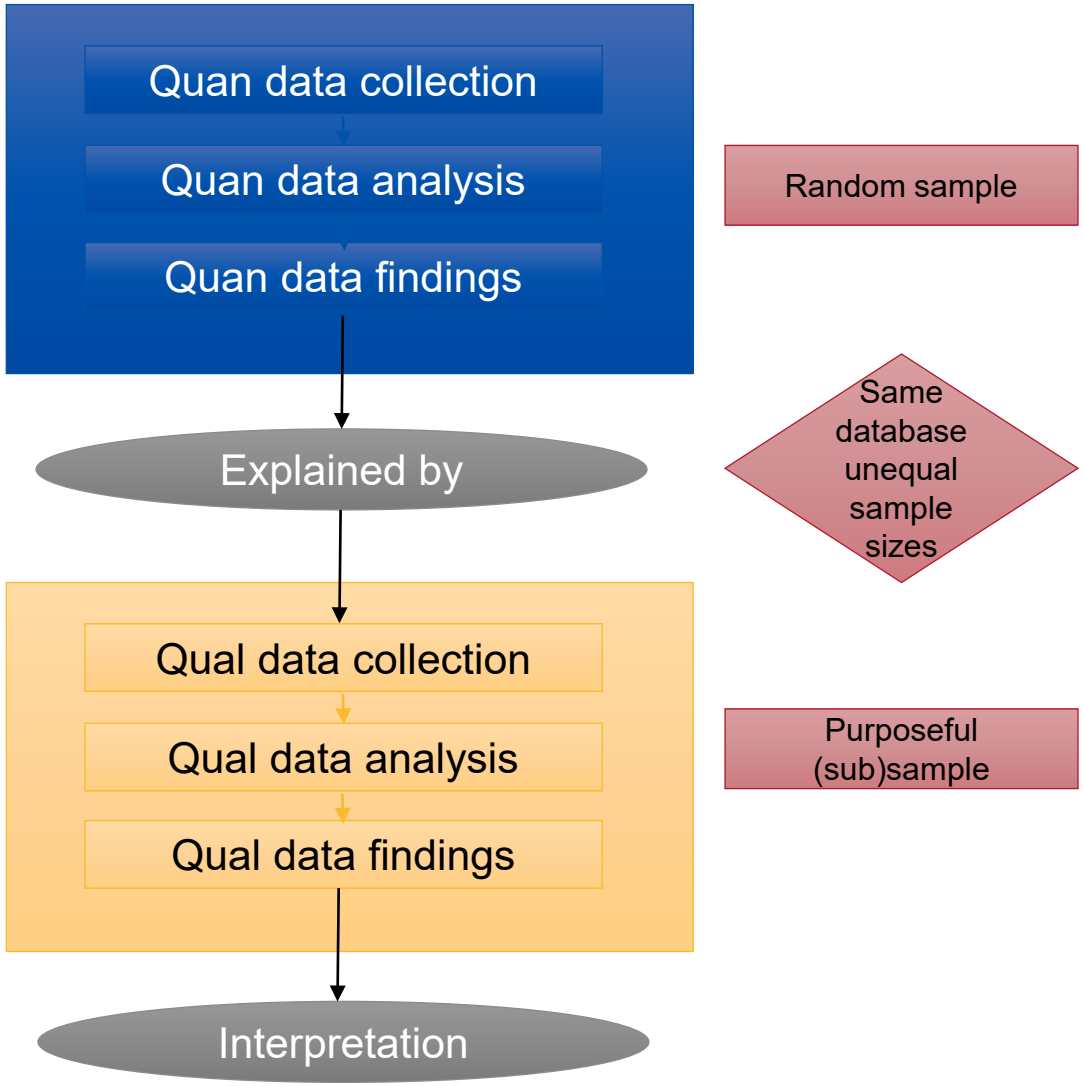
Core Design: Convergent



Core Design: Exploratory Sequential



Core Design: Explanatory Sequential



EXERCISE

Returning to your qualitative and mixed method questions…

Pick which of the three core designs might best fit your question.

Pair-share to discuss the following:

- What was your question
- Why did you choose your design
- What “products” would your QUAL component generate?
- What QUANT “products” might help address your question?

Scenario A

You are a hospitalist working at a small community hospital in the Midwest. You are aware that outcomes for in-hospital cardiac arrest (IHCA) vary substantially across US hospitals. Your team has decided to implement an improvement project with the goal of increasing survival for IHCA in your setting.

You recently gained access to three years' data from the American Heart Association Get With the Guidelines -Resuscitation registry, which includes information about number of IHCA by hospital, survival to discharge, teaching status, number of beds, and US census region

Scenario A

Circulation

ORIGINAL RESEARCH ARTICLE

How Do Resuscitation Teams at Top-Performing Hospitals for In-Hospital Cardiac Arrest Succeed?

A Qualitative Study

Editorial, see p 164

BACKGROUND: In-hospital cardiac arrest (IHCA) is common, and outcomes vary substantially across US hospitals, but reasons for these differences are largely unknown. We set out to better understand how top-performing hospitals organize their resuscitation teams to achieve high survival rates for IHCA.

METHODS: We calculated risk-standardized IHCA survival to discharge rates across American Heart Association Get With The Guidelines–Resuscitation registry hospitals between 2012 and 2014. We identified geographically and academically diverse hospitals in the top, middle, and bottom quartiles of survival for IHCA and performed a qualitative study that included site visits with in-depth interviews of clinical and administrative staff at 9 hospitals. With the use of thematic analysis, data were analyzed to identify salient themes of perceived performance by informants.

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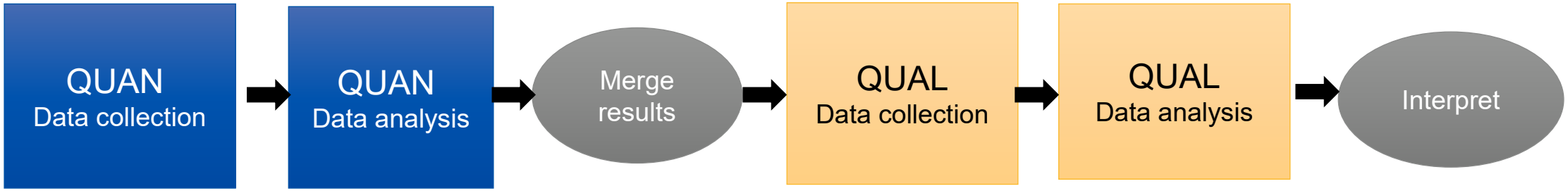
Scenario A: Explanatory Sequential



Procedures:

- Select N=192 hospitals with >20 IHCA Jan 2012 – Dec 2014
- Apply standardized method to calculate risk-standardized survival rate

Products:

- Standardized survival to discharge rates

Procedures:

- Descriptive statistics
- Rank order hospitals by survival
- Divide hospitals into top- , middle-, and lowest quartiles

Products:

- Classification of hospitals by performance

Procedures:

- Define a priori criteria for site visits
- Apply criteria to registry sample

Products:

- Identify 12 hospitals for site visits
- Recruit sites (n=9 agreed)

Procedures:

At each site:

- One on one semi-structured interviews with gatekeeper (individual linked with hospital participation in registry) and key staff members
- Site visits

Products:

- Field notes
- Transcripts
- documents

Procedures:

- Coding
- Thematic analysis

Products:

- Coded text
- IHCA Performance Themes (n=4 : team design, team composition, communication, training)

Procedures:

- Summarize dimensions

Products:

- List of recommendations to address themes distinguishing top performing hospitals)

Scenario B

You serve on the Safety and Quality Assurance committee for a robust network of primary care practices affiliated with a large healthcare system. Recently your committee has reviewed several safety events involving aggressive or violent behavior by patients towards social work staff in multiple locations across the system, including waiting rooms for both primary care and mental health practices.

Your team decides to initiate an improvement project to address exposure by system employees to patient/client violence.

Scenario B

Article

Journal of Mixed Methods Research
1–18

DOI: 10.1177/1558689814525263
mmr.sagepub.com
SAGE

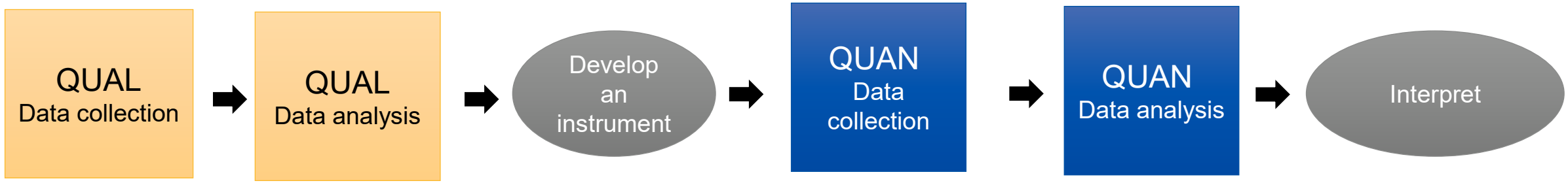
The Development of Client Violence Questionnaire (CVQ)

Guy Enosh[1], Shay S. Tzafrir[1], and Tali Stolovy[2]

Abstract

The purpose of this study was to develop, test, and validate a questionnaire for assessing social workers' exposure to client violence, which we call the Client Violence Questionnaire (CVQ). Following established procedures for scale development, four distinct stages of research were conducted, combining qualitative and quantitative methods. The contribution of this study is threefold—methodological, conceptual, and practical. The instrument offers practitioners and academic researchers the opportunity to apply the scale both for internal monitoring and knowledge sharing as well as further research. The development process of the CVQ scale demonstrates how the qualitative method can serve as a distinct research stage and at the same time support and enhance the quantitative one, thus contributing to the validity and applicability of the instrument.

Scenario B: Exploratory Sequential



Procedures:

- N=38 social workers who experienced client violence in prior year
- One-on-one semi-structured interviews

Products:

- Field notes
- Transcripts

Procedures:

- Coding
- Thematic analysis

Products:

- Coded text
- 4 Themes (verbal aggression, threats, aggression towards property, physical violence)

Procedures:

- Consider 4 themes as topics for scale development

Products:

- 32 items across 4 subscales
- 14 item self-report measure (CVQ)

Procedures:

- N=189 social workers
- Survey with CVQ, Brief Symptoms Inventory (subscales for paranoid ideation, sensitivity, anxiety, hostility) , and sociodemographic items

Products:

- Numerical item scores

Procedures:

- Scale reliability
- Confirmatory factor analysis
- Hypothesis testing

Products:

- Cronbach's alpha
- Factor loadings
- Measures of fit
- Correlation matrices

Procedures:

- Summarize dimensions
- Evidence for construct validity
- Discuss extent to which qualitative dimensions validated

Products:

- Description of dimensions
- Validated instrument

Scenario C

You work in a large multidisciplinary community practice that includes pediatricians, family physicians, and internal medicine physicians that has decided to initiate a project to improve depression screening and management. While as a group you have implemented routine depression screening at annual/well visits, you have noticed that older patients/caregivers less often complete the paper form.

Your team has decided to focus first on improving the practice's processes to identify all patients who might be depressed.

Scenario C

Unwritten Rules of Talking to Doctors About Depression: Integrating Qualitative and Quantitative Methods

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ABSTRACT

PURPOSE We wanted to understand concordance and discordance between physicians and patients about depression status by assessing older patient's views of interactions with their physicians.

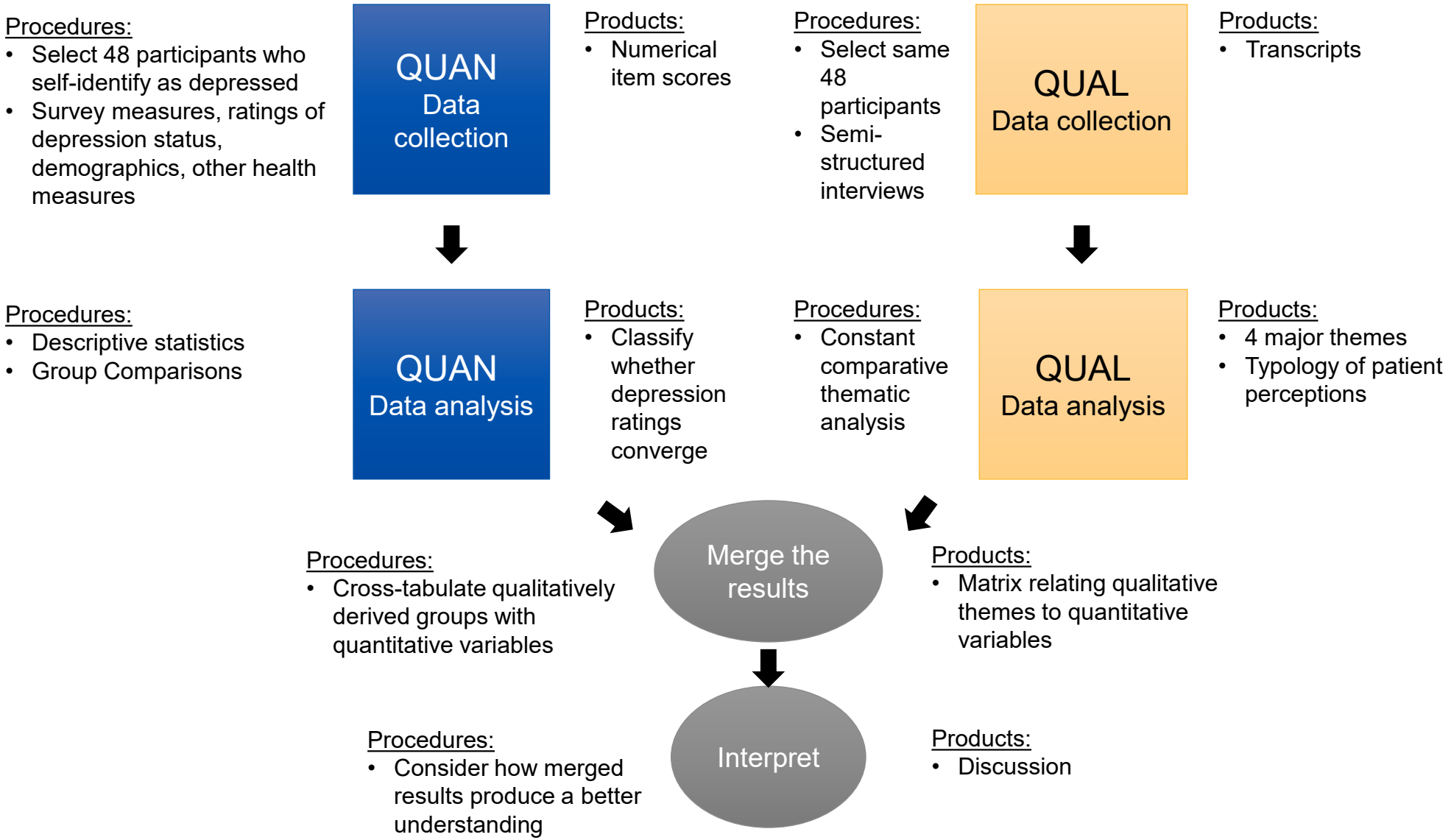
METHODS We used an integrated mixed methods design that is both hypothesis testing and hypothesis generating. Patients aged 65 years and older, who identified themselves as being depressed, were recruited from the offices of primary care physicians and interviewed in their homes using a semistructured interview format. We compared patients whose physicians rated them as depressed with those whose physicians who did not according to personal characteristics (hypothesis testing). Themes regarding patient perceptions of their encounters with physicians were then used to generate further hypotheses.

RESULTS Patients whose physician rated them as depressed were younger than those whose physician did not. Standard measures, such as depressive symptoms and functional status, did not differentiate between patients. Four themes emerged in interviews with patients regarding how they interacted with their physicians; namely, "My doctor just picked it up," "I'm a good patient," "They just check out your heart and things," and "They'll just send you to a psychiatrist." All patients who thought the physician would "just pick up" depression and those who thought bringing up emotional content would result in a referral to a psychiatrist were rated as depressed by the physician. Few of the patients who discussed being a "good patient" were rated as depressed by the physician.

CONCLUSIONS Physicians may signal to patients, wittingly or unwittingly, how emotional problems will be addressed, influencing how patients perceive their interactions with physicians regarding emotional problems.

Ann Fam Med 2006;4:302-309. DOI: 10.1370/afm.558.

Scenario C: Convergent Design



Scenario C: Joint Display

Table 3. Characteristics of Persons According to Themes Raised in Semistructured Interviews (n = 48)

Characteristics	"My doctor just picked it up" n = 6	"I'm a good patient" n = 8	"They just check out your heart and things" n = 7	"They'll just send you to a psychiatrist" n = 6
Sociodemographic characteristics				
Age, mean y (SD)	73.3 (3.3)	77.5 (4.2)	75.1 (7.8)	71.3 (6.3)
Women, No. (%)*	6 (100)	6 (75)	4 (57)	4 (67)
African American, No. (%)*	2 (33)	3 (38)	2 (28)	3 (50)
Education less than high school, No. (%)*	2 (33)	3 (38)	2 (28)	2 (33)
Psychological status				
CES-D score, mean (SD)	19.0 (11.8)	11.9 (7.4)	15.3 (9.6)	14.0 (10.3)
BAI score, mean (SD)	10.5 (4.9)	10.0 (9.1)	6.4 (4.5)	6.8 (3.8)
BHS score, mean (SD)	4.8 (4.9)	3.8 (3.1)	4.6 (3.7)	5.7 (3.1)
Cognitive status				
MMSE score, mean (SD)	28.7 (1.2)	27.5 (2.2)	28.9 (0.7)	27.8 (1.7)
Physical health				
Physical function score, mean (SD)	64.2 (21.5)	63.6 (31.0)	71.3 (24.8)	56.7 (28.2)
Role physical score, mean (SD)	45.8 (36.8)	65.6 (35.2)	46.4 (44.3)	29.2 (29.2)
Role emotional score, mean (SD)	88.9 (27.2)	72.3 (39.8)	50.0 (50.0)	83.3 (40.8)
Social function score, mean (SD)	75.0 (17.7)	70.3 (34.0)	62.5 (27.0)	72.9 (21.5)
Bodily pain score, mean (SD)	61.3 (17.7)	55.0 (25.8)	50.4 (26.1)	43.8 (24.2)
General health perception score, mean (SD)	41.7 (15.7)	61.3 (17.5)	54.3 (16.4)	42.5 (14.4)
No. of medical conditions, mean (SD)	8.7 (0.8)	6.6 (2.9)	8.0 (3.1)	8.0 (2.3)
No. of visits within 6 months, mean (SD)	2.5 (1.0)	2.8 (1.4)	2.6 (1.5)	2.8 (1.5)
Discussion of depression with physician				
Doctor understood how you feel, No. (%)*	5 (83)	4 (50)	1 (14)	3 (50)
Has discussed feelings with doctor, No. (%)*	5 (83)	3 (38)	1 (14)	2 (33)
Physician ratings at index visit				
Physician rates the patient as depressed, No. (%)*	6 (100)	3 (38)	4 (57)	6 (100)
Physician knows the patient very well, No. (%)*	5 (83)	6 (75)	4 (57)	4 (67)

Note: Data From the Spectrum Study (2001-2004).

* Column percents.

BAI = Beck Anxiety Inventory; CES-D = Center for Epidemiologic Studies Depression Scale; MMSE = Mini-Mental State Examination.

Scenario D

You work on a busy 36-bed medical-surgical unit. Recently hospital leadership has decided that patient satisfaction will be a core focus across the hospital in the coming year. During an interdisciplinary leadership meeting, the nurse manager for your unit notes that response times to nurse call bells have lengthened considerably in the past quarter, and that the Press-Ganey patient satisfaction scores for the unit have declined precipitously during the same interval.

Your team decides that nurse call bells will be the focus of your first PDSA cycle, with the goal of improving patient satisfaction

Scenario D

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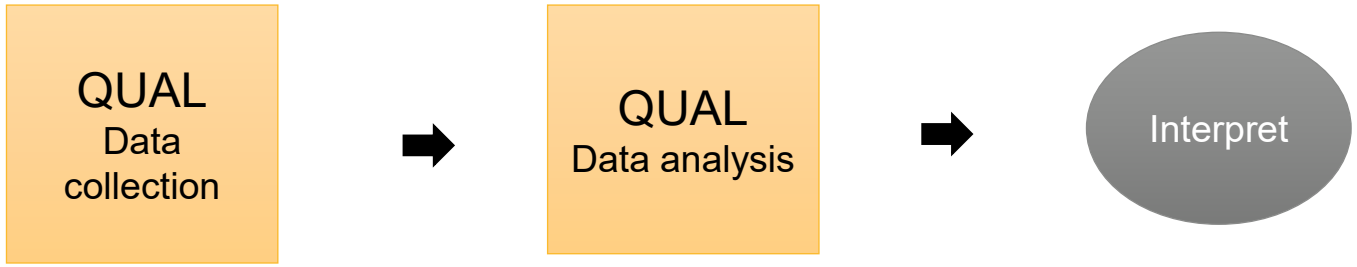
Dance of the Call Bells

Using Ethnography to Evaluate Patient Satisfaction With Quality of Care

Lynn Deitrick, PhD, RN; Joanna Bokovoy, DrPH, RN; Glenn Stern, MA; Anne Panik, MS, RN, CNAA

Ethnographic methods can provide insights into patients' perceptions of quality of care. We used ethnographic methods to examine problems related to answering patient call lights on one inpatient unit in the hospital. Communication through call bells consisted of 3 interrelated components. These included answering the call bell, communicating the patient's request, and following through with the request. Results of this study provided a deeper understanding of the nuances of power and control embedded within the issue of patient-caregiver communication and empowered unit staff to find solutions to the call bell problem. **Key words:** *call bells, ethnography, quality of care, qualitative methods*

Scenario D: Ethnography



Procedures:

- Site mapping
- Photograph of public areas
- 60 hours observation on all 3 shifts over 3 months
- Informal and semi-structured interviews

Products:

- Field notes
- Transcripts
- Documents
- Photographs

Procedures:

- Coding
- Thematic analysis

Products:

- Coded text
- Coded images
- Process map

Procedures:

- Summarize findings
- Cross-checking/triangulation

Products:

- Summary of recommendations for improvement
- Presentation to key stakeholders

Mixed Methods Designs

Convergent

Exploratory Sequential

Explanatory Sequential

Program Evaluation

Intervention Trial

Case Study

Participatory Research

= Advanced Designs

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