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**Qualitative Research Methods in
Medical Education**


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Overview

- Qualitative research methods
- Qualitative data
- Role of qualitative data in medical education
- Identifying & displaying themes in qualitative data
- Standards for rigor
- Issues
- Resources


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**Qualitative Research
Paradigms: Reprise (Hodgson)**

- Deductive (Gruppen): Begin with a theory and collect data to test it.
- Inductive (Harris): Begin with observations and attempt to explain by generalizing


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**Qualitative Research
Design: Reprise (Hodgson)**

- Confirmatory
 - Experimental
 - Quasi-experimental
 - Correlational (non-experimental)
- Exploratory
 - Qualitative

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**Qualitative Research
Methods: Reprise (Hodgson)**

- Interviews
- Focus groups
- Surveys: Open-ended questions
- Observations: Recorded in field notes
- Document analysis

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Qualitative Research: Data

What is qualitative data?

Data in the form of words, rather than numbers, based on:

- Asking open-ended questions in:
 - Interviews
 - Groups
 - Surveys
- Examination of documents
- Observation of situations and actions, recorded in field notes

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Example of Qualitative Data

From focus group question about strengths of an ambulatory medicine course


“One thing I really liked was continuity of care . . . I liked knowing what was going on, just kind of connecting with people. It was for me one of the first times I really felt like I was making a difference . . .”

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Qualitative Data Example

One thing I really liked was continuity of care . . . I liked knowing what was going on, just kind of connecting with people. It was for me one of the first times I really felt like I was making a difference. Part of that was because their expectations were pretty high for me. I've gone home a couple of time, I live in Wyoming, and people have asked me: “Do you feel like a doctor now? Last year, I would think, no, I don't feel much different than I did last year. But, now I actually feel like, if I had to, I can problem-solve better on my own, and figure out what to do.”


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Uses of Qualitative Data

- Staple of some social sciences, e.g.,
 - Anthropology
 - History
- Increasing use and acceptance in other social sciences
 - Psychology
 - Sociology
 - Public health
 - Policy analysis
 - Health care evaluation


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Related Terms

- Ethnography - Study of culture
- Field methods - Study in the field
- Naturalistic methods - Natural settings
- Participant observation
- Case study - In-depth study of a case
- Hermeneutics - Interpretation of text
- Grounded theory - Paradigm
 - Develop theory based inductively on observations

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Uses in Medical Education Research and Scholarship

- Needs assessments
- Program development
- Curriculum evaluation
- Performance evaluation
- Various research application

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Expanding Definition of Research/Scholarship

Four kinds, applicable to all disciplines

- Discovery: "Original research"
- Integration: Connections among discoveries - often interdisciplinary
- Application: Application of knowledge to significant problems
- Teaching: Communicating knowledge effectively to students

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Research/Scholarship Influential Writings/Sources

- Boyer: Scholarship Reconsidered
- Carnegie Foundation for Advancement of Teaching survey of
 - Granting agencies
 - Scholarly press editors
 - Scholarly journal editors
- Glassick: Scholarship Assessed

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Research/Scholarship Standards for Any Type

- Clear goals
- Adequate preparation
- Appropriate methods
- Significant results
- Effective presentation
- Reflective critique


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Scholarship: Education Activities - Grist for Scholarship

- Needs assessments
- Program development
- Curriculum evaluation
- Performance evaluation
- Various research applications


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Uses of Qualitative Data

- Source of well-grounded, rich, holistic descriptions and explanations of processes, in identifiable local contexts

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Uses of Qualitative Data Richness

- Vivid
- Concrete
- **“Thick”** descriptions
- Ring of truth
- May have strong impact on reader

One thing I really liked was continuity of care. . . I liked knowing what was going on, just kind of connecting with people. It was for me one of the first times I really felt like I was making a difference. Part of that was because their expectations were pretty high for me. I've gone home a couple of time, I live in Wyoming, and people have asked me. "Do you feel like a doctor now? Last year, I would think, no, I don't feel much different than I did last year. But, now I actually feel like, if I had to, I can problem-solve better on my own, and figure out what to do."

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Uses of Qualitative Data Grounded

- Grounded in a context
- “Real life”
- Naturally occurring events

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Uses of Qualitative Data Lived Experience

- Locate meanings people place on processes, events in their lives

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Uses of Qualitative Data Complexity

- Strong potential to reveal complexity

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Uses of Qualitative Data Discovery

- Strategy for discovery
- Serendipitous findings
- New conceptual frameworks
- New hypotheses to test

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Uses of Qualitative Data Supplement Quantitative Data

- Supplement
- Validate
- Explain
- Illuminate
- Reinterpret

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Procedures for Analysis Identifying Themes in Qualitative Data Methods that Yield Credible, Trustworthy Meanings

- By what method do we get from -
 - 25 pages of a focus group transcript to a useful and trustworthy summary of results?
 - 150 surveys, with responses to open-ended questions to a useful and trustworthy summary of results?

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Procedures for Analysis
Identifying Underlying Themes

- One set of objectively identifiable themes

Versus

- Multiple reasonable interpretations

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Common Features of Analytic Methods

- **Coding:** Develop/affix CODES
- **Reflection:** Note reflections in margins
- **Pattern Identification:** Sort/sift to identify themes & patterns
- **Representation:** Display in tables, figures, narrative
- **Generalization (theorizing):** Gradually elaborate generalizations that cover consistencies discerned in database

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Example: Questions

- *Compare this course [microbiology, pathology, physiology, pathology] with other courses you have taken in medical school. What SPECIAL CONTRIBUTIONS, if any, did it make in preparing you to become a physician?*
- *Compare this ambulatory care rotation to other clinical rotations you have taken. What SPECIAL CONTRIBUTIONS, if any, did it make in preparing you to become a physician, e.g., knowledge, clinical competence, career development?*

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Coding & Identifying Themes

Compare this ambulatory care rotation to other clinical rotations you have taken. What SPECIAL CONTRIBUTIONS, if any, did it make in preparing you to become a physician, e.g., knowledge, clinical competence, career development?

Comment 1: *"The independence allowed me to gain more confidence in my clinical skills. The hurried pace helped me to become more efficient."*

Comment 2: *"Outpatient management of disease is not really addressed in any other rotation. Also, the sheer number of patients seen really allows you to hone your H and P skills and gain confidence in patient interaction. This is also the only rotation where you see the administrative side of medicine."*

Comment 3: *"Caused me to like Family Medicine even better. Dramatically increased my confidence. Dispelled fears that ambulatory medicine might be boring. Gave me a good start at learning to prioritize in a clinic visit of a finite time period."*

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Coding: Inductive From Data Set

Question: Compare this ambulatory care rotation to other clinical rotations you have taken. What SPECIAL CONTRIBUTIONS, if any, did it make in preparing you to become a physician, e.g., knowledge, clinical competence, career development?

Comment 1: *"The independence allowed me to gain more confidence in my clinical skills. The hurried pace helped me to become more efficient."*

Comment 2: *"Outpatient management of disease is not really addressed in any other rotation. Also, the sheer number of patients seen really allows you to hone your H and P skills and gain confidence in patient interaction. This is also the only rotation where you see the administrative side of medicine."*

Comment 3: *"Caused me to like Family Medicine even better. Dramatically increased my confidence. Dispelled fears that ambulatory medicine might be boring. Gave me a good start at learning to prioritize in a clinic visit of a finite time period."*

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Example of Coding - I

CURRICULUM THEMES

CUM Outpatient management of disease not addressed in any other rotation

EDUCATION EXPERIENCE

EI: Independence helps increase confidence in clinical skills
EE: Quick pace helps to increase efficiency
EV: High volume of patients contributes to learning
EA: Saw administrative side of medicine

OUTCOMES

OCC: Gained confidence in clinical skills
OCI: Gained confidence in patient interaction
OLA: Learned about administrative side of medicine
OSE: Learned to become more efficient
OSPr: Learned to prioritize in a clinic visit
OSPx: Improved physical examination skills
OSH: Improved history taking skills
OIAM: Found ambulatory medicine to be interesting
OIF: Increased interest in family medicine

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Example of Coding - II

ROTATION ATTRIBUTES CONTRIBUTING TO STUDENT LEARNING
 AP: Quick pace
 AV: High volume of patients
 AI: Independent work

STUDENT KNOWLEDGE
 KA: Clinic administration
 KO: Outpatient management
 KN: Nature of ambulatory medicine

STUDENT SKILLS
 SH: Hone skills in H and P
 SP: Learning to prioritize issues in clinic visit

STUDENT ATTITUDES
 AC: Increased confidence in patient interaction

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Trustworthiness of Qualitative Data Analysis
Reliability, Validity

- **Peer Review (Audit Trail)**
 Review of themes by peer(s) not involved in research
- **Member Checking**
 Sharing interpretations with individuals who were data sources
- **Triangulation**
 Comparing with data from other sources, e.g., comparing focus group analysis with results from quantitative surveys
- **Negative Case Analysis and Saturation**
 Refining coding scheme until it encompasses all data points

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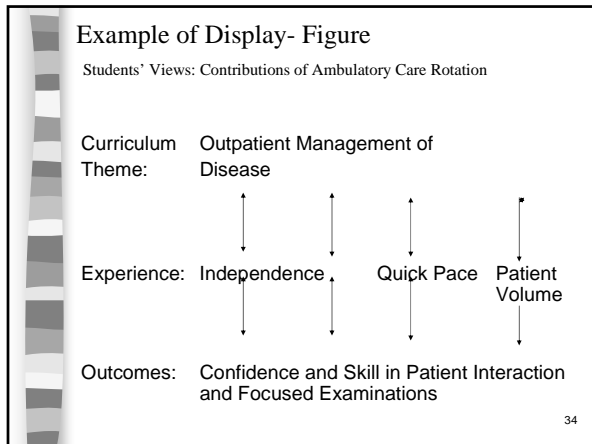
Example of Display: Coding

CURRICULUM THEMES
 Outpatient management of disease not addressed in any other rotation (1)

EDUCATION EXPERIENCE
 Independence helps increase confidence in clinical skills (1)
 Quick pace helps to increase efficiency (1)
 High volume of patients contributes to learning (1) *"Sheer number of patients seen really allows you to hone your H and P skills and gain confidence in patient interaction."*
 Saw administrative side of medicine (1): *"This is also the only rotation where you see the administrative side of medicine."*

OUTCOMES
 Gained confidence in clinical skills (1)
 Gained confidence in patient interaction (1)
 Learned about administrative side of medicine (1)
 Learned to become more efficient (1)
 Learned to prioritize in a clinic visit (1) *"Gave a start at learning to prioritize in a clinic visit."*
 Improved physical examination skills (1)
 Improved history taking skills (1)
 Found ambulatory medicine to be interesting (1) *"Dispelled fears that ambulatory medicine might be boring."*
 Increased interest in family medicine (1) *"Cause me to like Family Practice even better."*

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Example of Display: Narrative

A major purpose of this evaluation is to identify the special role of an ambulatory medicine rotation in students' medical education. In response to the question: Compare this ambulatory care rotation to other clinical rotations you have taken. What SPECIAL CONTRIBUTIONS, if any, did it make in preparing you to become a physician, e.g., knowledge, clinical competence, career development?, students identified aspects of their educational experience in the rotation as well as outcomes.

Overall, the rotation made a special contribution to their medical education by focusing on outpatient management of disease, which is not addressed in any other clerkship. The relative independence they experienced, along with the quick pace and the high volume of patients, and opportunities to see the administrative side of medicine, all contributed significantly to their learning.

Students described important learning outcomes. They gained confidence and skill in patient interaction, and focused history taking and physical examinations. . . .

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Stages in Analyzing Qualitative Data

Iterative Process, Analytic Choices

- Analytic Choices
- Views about meaning, patterns, stories to tell, explanations, hypotheses, at first held lightly, with openness and skepticism, become increasingly grounded
- Views tested for plausibility, sturdiness -- validity
- Data reduction: Coding
- Data Display: Table, figure, narrative
- Drawing conclusions

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Issues

- Data overload
- Time demands of processing and coding
- Adequacy of sampling
- Generalizability of findings
- Researcher bias
- Credibility and quality of conclusions/confidence in findings
- Use in the world of policy and action

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Resources: Qualitative Methods

Denzin, Norman and Lincoln, Yvonna. *Handbook of Qualitative Research*. Thousand Oakes: Sage, 1994.

Harris, Ilene. Qualitative methods. In Geoff Norman et.al. (eds.) *International Handbook of Research in Medical Education*. In press, Kluwer, 2002, pp. 45-95.

Miles, Matthew and Huberman, A. Michael. *Qualitative Data Analysis: An Extended Sourcebook* (2nd edition). Thousand Oakes: Sage, 1994.

Strauss, Anselm and Corbin, Juliet. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park: Sage, 1999

Sage's Qualitative Research Methods series

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Resources: Scholarship

- Boyer, Ernest. *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton NJ: The Carnegie Foundation for the Advancement of Teaching, 1990.
- Glassick, Charles et. Al. *Scholarship Assessed: Evaluation of the Professoriate*: San Francisco CA: 1997.

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