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# **Building and Utilizing Data for Improved Health**

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# Imperfect evidence

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- ▶ Data offers a picture
  - ▶ Never complete!
  - ▶ Always a shadow
- ▶ Researcher determines what aspect of the shadow to highlight.
- ▶ How do researchers affect the shadow?
- ▶ How can researchers position the light most accurately?



# Clinical Trials

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- ▶ Randomized Control Trials
  - ▶ Considered “the gold standard” for building evidence
- ▶ Yet issues to consider:
  - ▶ Ethics of control/placebo groups
  - ▶ Population size/availability
  - ▶ Feasibility in low/middle income context
    - ▶ State of research infrastructure?
    - ▶ Trade-off between “higher quality” data and time/cost
  - ▶ Appropriateness to the question
    - ▶ Example: RCTs are not well-suited to address complex, systems-based interventions (Yamey & Feacham, 2011)

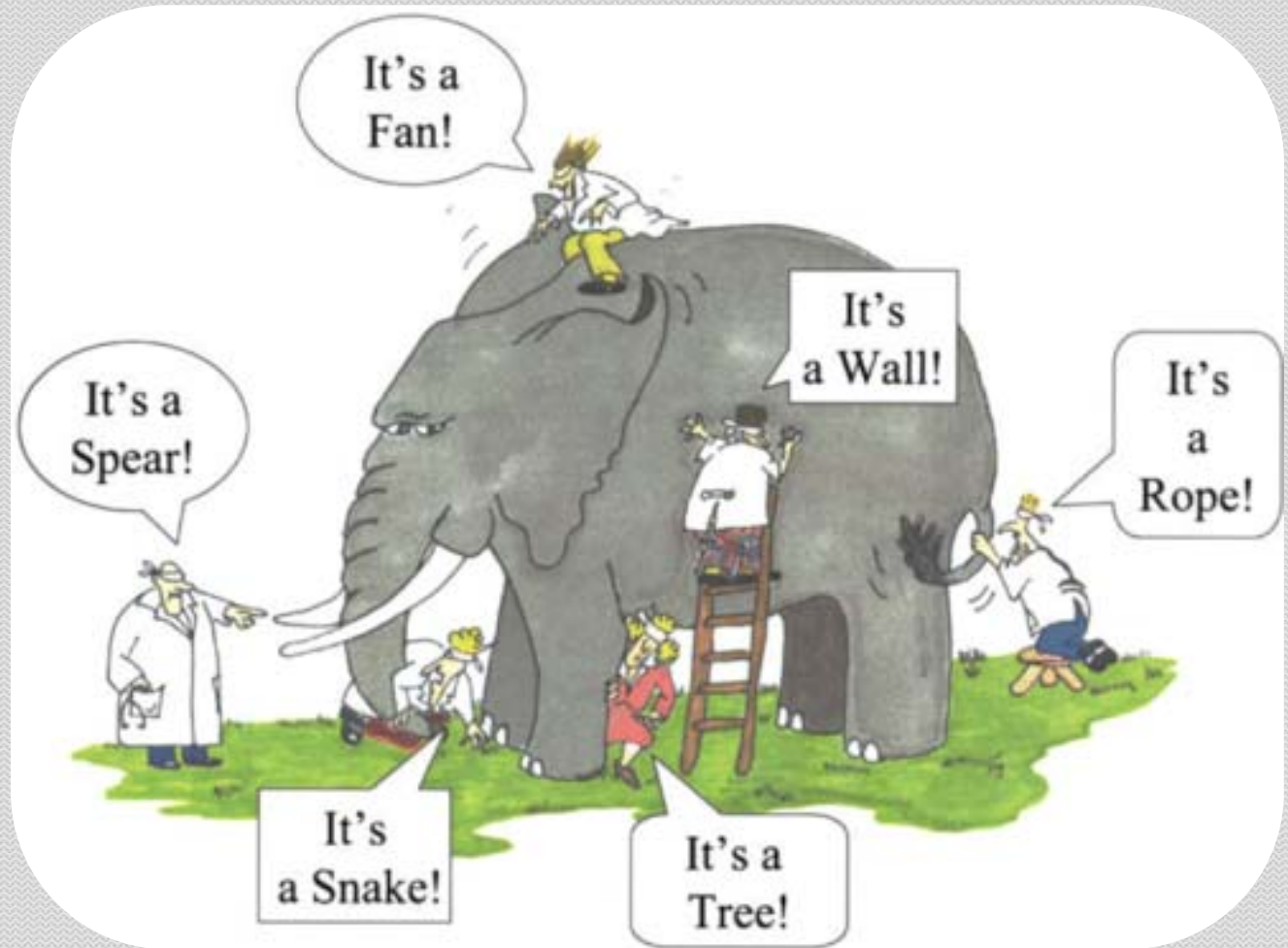


# Types of Evidence

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## ▶ What QUALIFIES as evidence?

Different types of data can describe different parts of a phenomenon



# Quantitative Data

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- ▶ Broad, macro, “big picture” but thin
  - ▶ Allows large, randomized samples
  - ▶ Answers narrowly defined questions
- ▶ HOW MANY or HOW MUCH of X is happening
  - ▶ How big or small is the relationship between X and Y?
- ▶ Often considered “objective” – but still based on subjective assumptions and assessments



# Qualitative Data

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*Not everything that can be counted  
counts,  
and not everything that counts can be  
counted.*  
*Albert Einstein*

- ▶ Anything that is not numerical → words, text
- ▶ Deep, “thick” but narrow
  - ▶ Smaller sample sizes
- ▶ Can describe WHY or HOW X is happening

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- ▶ Highly subjective

# Qualitative Methods

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- ▶ **Systematic analysis** looking for themes, patterns, ideas
  - ▶ Methods must be transparent and replicable following rigorous standards
  
- ▶ **Common methods**
  - ▶ Case studies
  - ▶ Focus groups
  - ▶ Key informant interviews
  - ▶ Participant observation
  - ▶ Document review



# Example of qualitative study

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- ▶ **Women with gestational diabetes in Vietnam: a qualitative study to determine attitudes and health behaviours (2012)**

J Hirst, TS Tran, MAT Do, F Rowena, JM Morris and HE Jeffery

Sample of 34 pregnant women, >18 years of age, with gestational diabetes

“Purposeful” sample for a range of gestational ages and severity

Method: Focus groups

Analysis: research found a lack of health literacy and knowledge of GDM, which affects compliance. Women felt small group sessions and information leaflets could benefit them.

Conclusion: “the scale up of screening for GDM needs to be accompanied by a comprehensive clinician education and patient health promotion package. Culturally specific advice on diet and the promotion of breast-feeding are needed.”

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# Emergent Approach - Mixed Methods

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- ▶ Combines quantitative and qualitative methods
  - ▶ Intentional merging of quantitative and qualitative data to maximize the strengths based on the theoretical framework behind the specific question.
  - ▶ Contributes to translating quantitative data into real-life contexts
- ▶ Qualitative research can complement quantitative to
  - ▶ develop hypotheses
  - ▶ strengthen quantitative surveys
  - ▶ assist with interpretation and analysis of results
  - ▶ deepen understanding through “triangulation” (Malterud, 2001)



# Example of Mixed Methods

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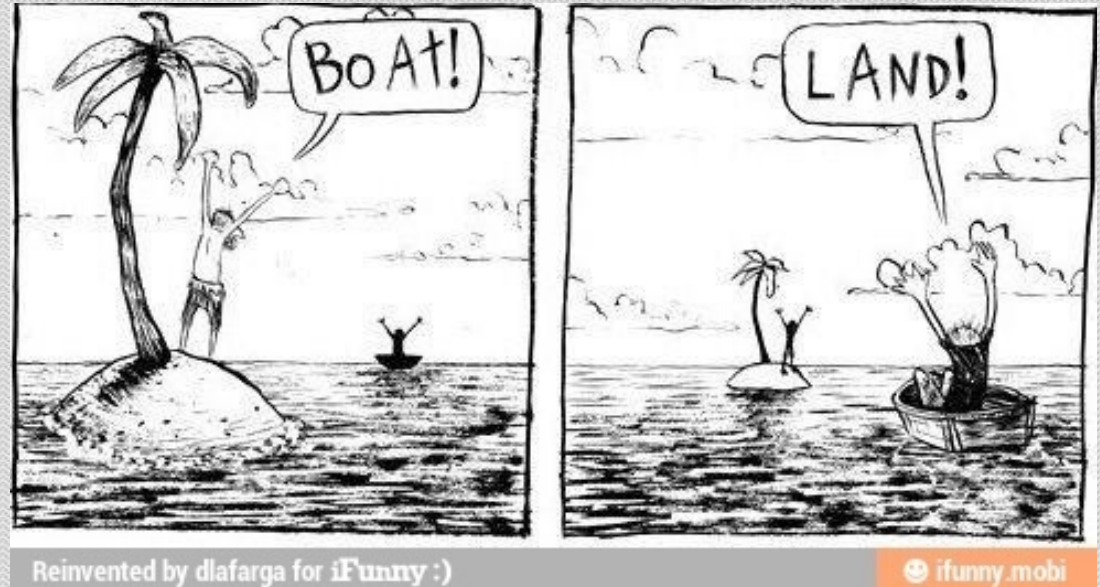
- ▶ To study how user fees impact health care utilization:
  - ▶ Quantitative data – how many people utilize formal health care; who utilizes it; how much do they have to spend on care?
    - ▶ Identifies the size of the phenomenon
  - ▶ Qualitative data – what are people’s experiences with user fees; are there other barriers to accessing health care?
    - ▶ Identifies context, unanticipated ‘hidden’ information
- *Together*, quantitative and qualitative data can help provide a more complete picture
  - Can lead to more comprehensive policies/programs



# Ethics of Data Collection

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- ▶ Sampling methods
  - ▶ Generalizability
  - ▶ Weighted voices
- ▶ WHO is represented?  
Who has a voice?
  - ▶ Whose perspective is favored?
- ▶ Burden on study participants
  - ▶ Time
  - ▶ Cost
  - ▶ Risk (politically or socially sensitive topics, stigmatized groups)
    - Important to make sure community benefits in some way



# Ideal Research Pathway

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1. Identify a phenomenon, policy, health issue of interest
2. Develop hypothesis / research question(s) / study design
3. Identify variables of interest
4. Develop measures
5. Collect data
6. Quality assurance of data (data cleaning)
7. Analyze data
8. Interpret and discuss results
9. Translate → Impact (alter policy, implement program, etc.)



# When reality is not ideal

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- 1) What data are available?
- 2) Assess data to consider relevant questions and possible study designs (often cross-sectional)
  - ▶ Important to ensure that research question is significant to the context (and adds to the existing literature if you are an academic researcher)
- 3) Select variables
- 4) Conduct analysis
- 5) Interpret the results
- 6) Translate → Impact



# Small Group Exercise

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- ▶ Consider health policies, programs, outcomes you think are important to your responsibilities or organization.
- ▶ Develop possible research questions that hypothesize relationships around those policies, programs, etc.
- ▶ What type of populations, study design, etc. might you use to test your hypothesis?
- ▶ What might be some of the challenges to this approach?
- ▶ How might this evidence improve services or affect policy?



# References

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- ▶ Hirst, J., Tran, T.S., Do, M.A.T., Rowena, F., Morris, J.M., & Jeffery , H.E. (2012). Women with gestational diabetes in Vietnam: a qualitative study to determine attitudes and health behaviours. *BMC Pregnancy and Childbirth*,12:81, 1–10.
- ▶ Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *The Lancet.*, 358, 483–88
- ▶ Yamey, G. & Feachem, R. (2011). Evidence-based policymaking in global health – the payoffs and pitfalls. *Evidence-Based Medicine*, 16:4, 97–99

