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JOHNS HOPKINS  
BLOOMBERG  
SCHOOL *of* PUBLIC HEALTH

## Section C

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### Methodological Challenges

# Methodological Requirements

- Life course perspective demanding of research methodology
  - Longitudinal data
  - Detailed measures from multiple levels
  - Sophisticated analytic methods
- Standard research tools may not be appropriate
- Institutional and practical barriers

# Research Design

- RCT or experiment rarely possible when exposures are social
  - Can randomize interventions
  - Use natural experiments
- Rely on observational data
  - Probability samples
  - Convenience samples
- Inherent problems establishing causation

# Longitudinal Study Designs

- Panel study: sample of individuals followed over time
  - Health and Retirement Study (U.S.)
  - Add Health (U.S.)
- Cohort study: group of individuals experiencing an event followed over time
  - British cohorts (1946, 1958, 1970, 2000)

# Barriers

- Limited panel and cohort studies available
  - Don't always have measures needed
- Doing new studies is costly; researcher must wait for outcomes to occur
  - More of a problem for adulthood or aging
- In many settings, any data are scarce

# Solutions

- Add retrospective data to existing study
- Link data sources, e.g., a survey with administrative data

# Solutions

- Use data collected for other purposes or long ago
- Creativity



# Measurement

- Need to define and measure both outcomes and determinants as precisely as possible
  - Not just what is health at each stage, but how to measure (operationalize) it

# Measurement

- Problems arise when researchers are out of their specialty area
  - Epidemiologists measuring SES, “region”
  - Social scientists ignore disease process

# Measurement

- Need for cross-disciplinary teams, but there are institutional and practical barriers

# Analytic Approaches

- Standard regression-style statistical methods may not be appropriate for longitudinal data
- Many innovations in statistical methods for longitudinal data
  - Latent growth curves
  - Hierarchical linear models
  - Structural equation models

# A Role for Qualitative Research

- Sometimes complicated processes can't be distilled into quantitative terms
- Problem for generalizability and face validity to funders