

**More than the question-response process:  
Cognitive interviewing as a method to examine  
how process and structure impact the collection  
of survey data**

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# Health Related Administrative Records

## Examples include:

- Hospital records
  - Medical records
  - Billing records
  
- State vital records
  - Birth certificates
  - Death certificates



## Administrative Records as Data

- ❑ **Sometimes used as 'gold standard' for surveys**
  - Validation studies: Comparing self-reported survey estimates against administrative records
    - Blumberg & Cynamon, 1999 (validating public health insurance coverage survey estimates)
    - Davern et al., 2008 (validating private health insurance coverage survey estimates)
- ❑ **Sometimes used to link to survey data**
  - Augment analytical power – longitudinal data
    - NHIS links to mortality data
- ❑ **Administrative records are, themselves, the data**



## **Administrative Records as Data Source**

- ❑ **Administrative records are modified and adapted to serve research purposes – source of data, not used directly as data**
  - Extract information
  - Abstract information
- ❑ **Focus of this talk is on administrative records as a source of data**



# Administrative Data vs. Survey Data

- ❑ **Surveys:**
  - the respondent is the source of data
- ❑ **Administrative data:**
  - the record is the source of data



## Administrative Data vs. Survey Data

- ❑ **Data quality – a consideration in both**
  - Surveys: measurement error
  - Administrative records: often assumed to be self evident; more reliable than survey data; but accuracy & completeness are potential problems
- ❑ **Assessing data quality**
  - Survey example: Cognitive interviewing
  - Administrative records example:
    - Repeat the process
    - Observe the process
    - Range and logic checks



## Evaluating Data Quality in Surveys: Cognitive Interviewing

- ❑ **Model of how data are collected in surveys = question/response process (respondent provides an answer to a standardized question)**
- ❑ **Tourangeau's model defines the process**
  - Comprehension, Retrieval, Judgment, Response
- ❑ **Cognitive interviewing taps into this process to**
  - Determine where things can go wrong
  - To evaluate and describe construct validity



## Adapting the Question-Response Model

- ❑ The question-response model can be adapted and applied to administrative data
- ❑ Similar to Willimack & Nichols (2001; 2010) who modify the cognitive response model for establishment surveys



# Willimack & Nichols Adapt Question-Response Model for Establishment Surveys

- ❑ Record formation
- ❑ *Selection and identification of the respondent*
- ❑ *Assessment of priorities*
- ❑ Comprehension of the data request
- ❑ Retrieval of relevant information (from memory or *company records*)
- ❑ Judgment of adequate response
- ❑ Communication of the response
- ❑ *Release of the data*

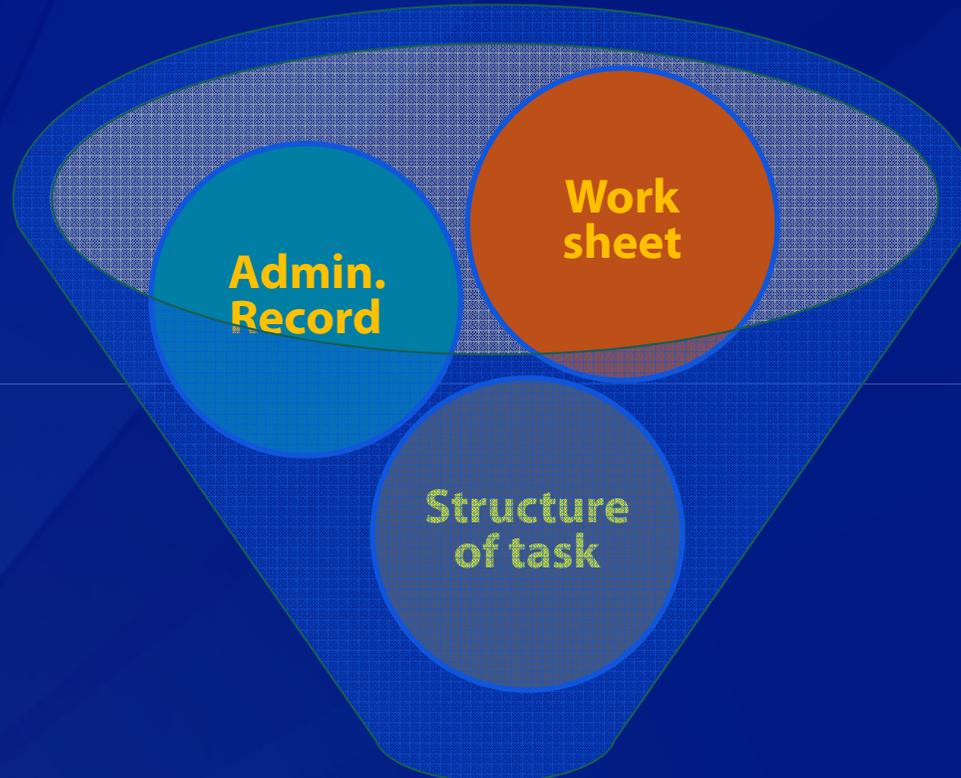


# Adapting the Question-Response Model to Administrative Data

- ❑ **Multidimensional adaptation of the model: The process of obtaining administrative data occurs at different levels**
  - Administrative record
  - Worksheet
  - Process of abstraction
  - Structure of the job (significant modification to the model – adds sociological insight, not just additional steps in the 4-step process)



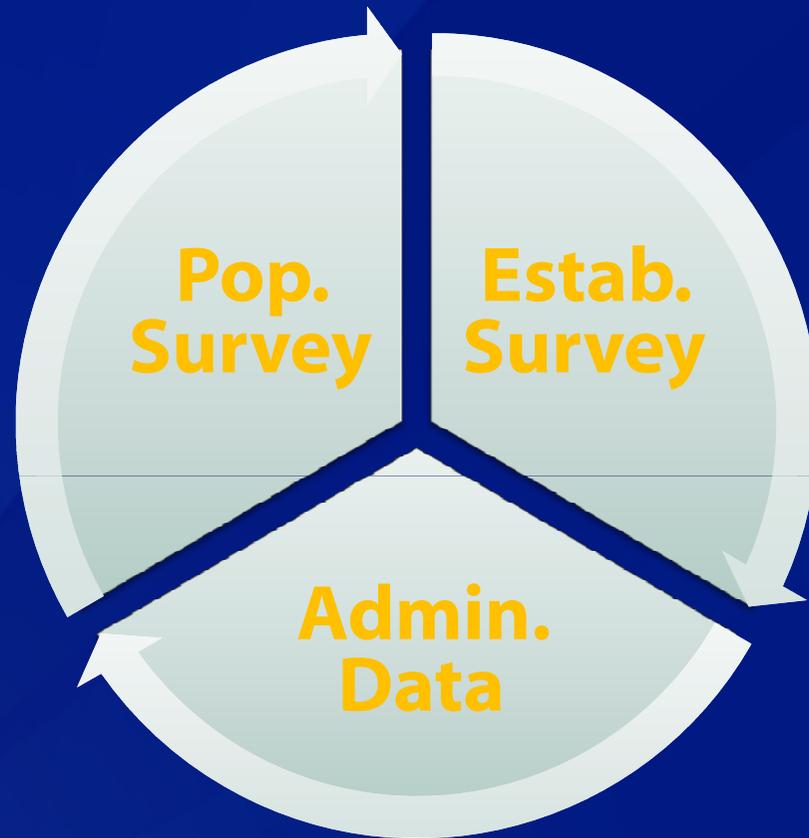
# Adapting the Question-Response Model to Administrative Data



**Administrative Data**



# Using Cognitive Interviewing to Evaluate Data

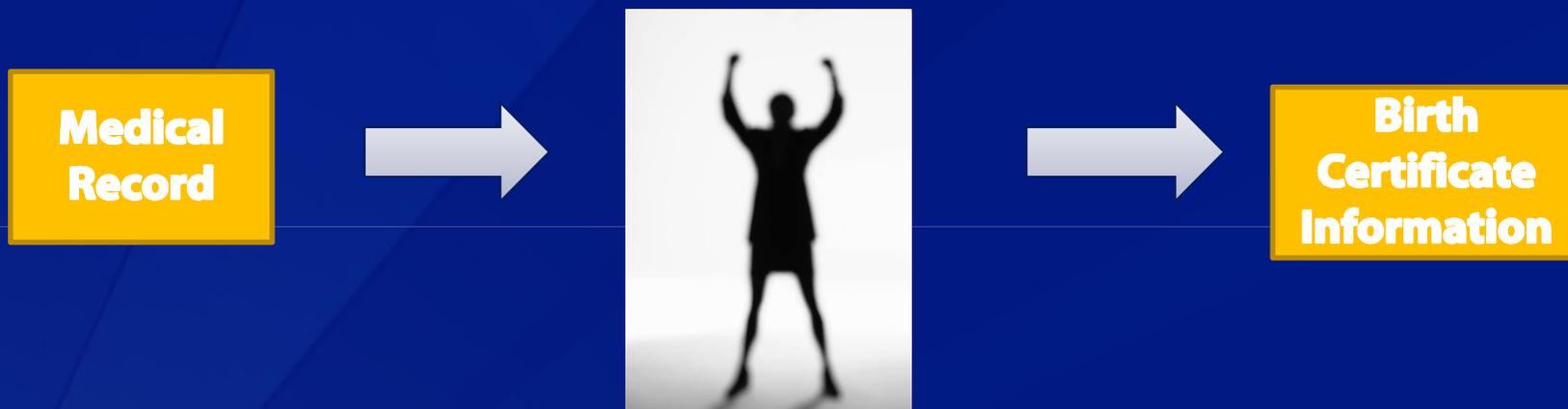


**A person is involved in each process!**



# Using Cognitive Interviewing to Evaluate Data Obtained from Administrative Records

Example: vital statistics birth certificate study



Information from medical records is used to create information for the birth certificate

# **BACKGROUND OF BIRTH CERTIFICATE STUDY**

## 2003 Birth Certificate Revision

- ❑ **A primary goal of the 2003 revision of the birth certificate was to improve data quality**
- ❑ **Recommendations to do this included (but were not limited to)...**
  - Having separate worksheets for mothers and hospital staff
  - Having the birth clerk collect medical & health information from the medical records (as suggested by clinicians)
  - Providing birth clerks with detailed, standardized definitions and instructions
  - Providing a guidebook with preferred sources and key words
- ❑ **Our job was to evaluate how & to what extent these recommendations have been implemented**



# **STUDY OVERVIEW**

## Recruitment /Sample

- ❑ Purposive sample
  - ❑ Interview Birth Information Specialists (BIS) in states with experience with the 2003 revision
    - ❑ Birth certificate info must be their primary duty
    - ❑ Must be in current job for 6 months or longer
  - ❑ States identified hospitals (with at least 1 full time BIS and a requisite number of births)
  - ❑ NCHS sent advance letters to all eligible hospitals
  - ❑ Telephone screening of BIS (confirm eligibility)
- ❑ Total of 54 Birth Information Specialists interviewed, representing 54 hospitals in 4 different states

## How Data Were Collected: Semi-Structured Interview

- ❑ **Overview of how birth certificate information is gathered**
  - “Standard” procedure for each hospital
  - Modifications/adaptations to the standard procedure (and why)
- ❑ **Item-by-item discussion of medical/health information**
  - Targeted discussion of selected items
  - Review who is responsible for obtaining information on each item
  - Review of sources used to complete each item
- ❑ **Use of guidebook**

**SELECT RESULTS**

## **General Findings: Structure of the Task Impacts Data Quality**

- ❑ **Great variability among hospitals in the collection process (not standardized, so not comparable)**
  - Variability in interpretation of worksheet items
  - Variability among states in worksheet design (separate sheets or all on one page)
  - Variability in who is responsible for getting medical & health from medical records (birth clerk vs. clinicians)
  - Variability in how certain items were collected (e.g., pregnancy history items vs. other medical & health information)

## **General Findings: Missing Data**

- ❑ Where the clinician is primarily responsible for completing the medical/health information, items are sometimes left blank**
- ❑ Prenatal records usually available, but not always updated with most recent dates and visits (sent to hospital weeks before delivery)**

## **General Findings: Issues with Specific Items**

- ❑ **Details needed for the worksheet may be lacking in the medical records**
  - Other previous poor pregnancy outcomes
  - Type of diabetes and hypertension
  - Assisted ventilation (length of time used not given)
  - Antibiotics & steroids (reason treatment given may not be noted)
  - Precipitous and prolonged labor (time not given)
- ❑ **Interpretation of some items on the worksheet varied**
  - Breastfeeding (pumping; mix of formula & breast milk)

## **General Findings: Birth Clerk Strategies for Missing Data**

- ❑ **Get information from mothers or nurses**
- ❑ **Call OB office for updated prenatal record**
- ❑ **“Logical estimation” sometimes used for...**
  - Trial of labor (not directly stated; reference L&D log book)
  - Infertility treatment
  - Obstetric estimate of gestation
  - Fetal intolerance of labor
  - Date of 1<sup>st</sup>/last prenatal visit
  - # of prenatal visits
  - Date of LMP

## **Conclusions About the Utility of the Methodology**

- ❑ **Cognitive interviewing method was very good at helping us understand**
  - the patterns of different processes by which the collection of birth certificate data take place
  - where the process deviates from the federally recommended standards
  - the possible causes of any error in birth certificates
- ❑ **Findings informed changes in the recommended procedures**