CHIS 2007 Area Probability Sample to Assess Nonresponse Bias

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www.CHIS.ucla.edu

CHIS: brief introduction

- **The California Health Interview Survey (CHIS) is California's source of state and local population-based health data**
- **CHIS is designed from the ground up to provide easily accessible data that can be used:**
  - To support decision making at the local level and statewide in public health and health care
    - For policy analysis, development and advocacy
    - For State and county surveillance of public health indicators
    - For service and program planning, development, and evaluation
  - To understand and measure health needs and disparities in California — characterized by ethnic, geographic, and social class diversity

CHIS: brief introduction

- **Conducted every other year since 2001 by the UCLA Center for Health Policy Research in collaboration with the Calif. Dept. of Public Health, Dept. of Health Care Services, and the Public Health Institute**
- **Funded by federal and state health agencies, California and national foundations, and others**
- **CHIS data is widely used by**
  - State agencies
  - County health departments
  - Academic researchers and students
  - Advocacy groups and CBOs

CHIS california health interview survey

CHIS: brief introduction

- **Large, geographically stratified random digit dial (RDD) telephone survey designed to provide statistically reliable estimates:**
  - At the local level for counties (adults) and statewide
  - For major racial/ethnic groups and many ethnic subgroups
- **CHIS survey population: all Californians living in households (excludes persons living in "group quarters" and homeless)**
- **One adult selected at random in each household, plus children and teens if available**
- **Three separate interviews**
  - Adult (age 18+) ~ 30 minutes
  - Adolescents (age 12-17) ~ 20 minutes
  - Children (age 0-11, by adult proxy) ~ 15 minutes

CHIS california health interview survey

CHIS: brief introduction

- **Sample design**
  - 44 total strata
    - 41 individual county strata
    - 17 smallest counties combined into 3 grouped county strata

	2001	2003	2005	2007
Adult (18+)	**56,270**	**42,044**	**43,020**	**51,048**
Child (0-11)	**12,802**	**8,526**	**11,358**	**9,913**
Teen (12-17)	**5,733**	**4,010**	**4,029**	**3,638**

CHIS 2007 nonresponse study

- **Recent changes to the survey environment may threaten data representativeness and quality**
  - Declining response rates increase the potential for nonresponse bias
  - Growth of cell-phone only households increase the potential for noncoverage bias landline RDD sample frames (see CHIS 2007 cell-phone only study for more information on noncoverage bias in CHIS estimates)
  - *Potential for bias is estimate specific*

- **Research questions pursued in CHIS 2007 nonresponse study**
  - Are CHIS estimates (all, some, none) biased due to nonresponse?
  - What method can best answer this research question?

How to explore nonresponse in CHIS 2007?

- **Nonresponse – difficult and complex problem to address**
  - 12+ month planning process
  - Multiple “Methods Experts” planning teleconference calls
  - Individual consultation with experts in survey methodology
  - CHIS Advisory Board & Sample Design & Survey Methodology Technical Advisory Committee

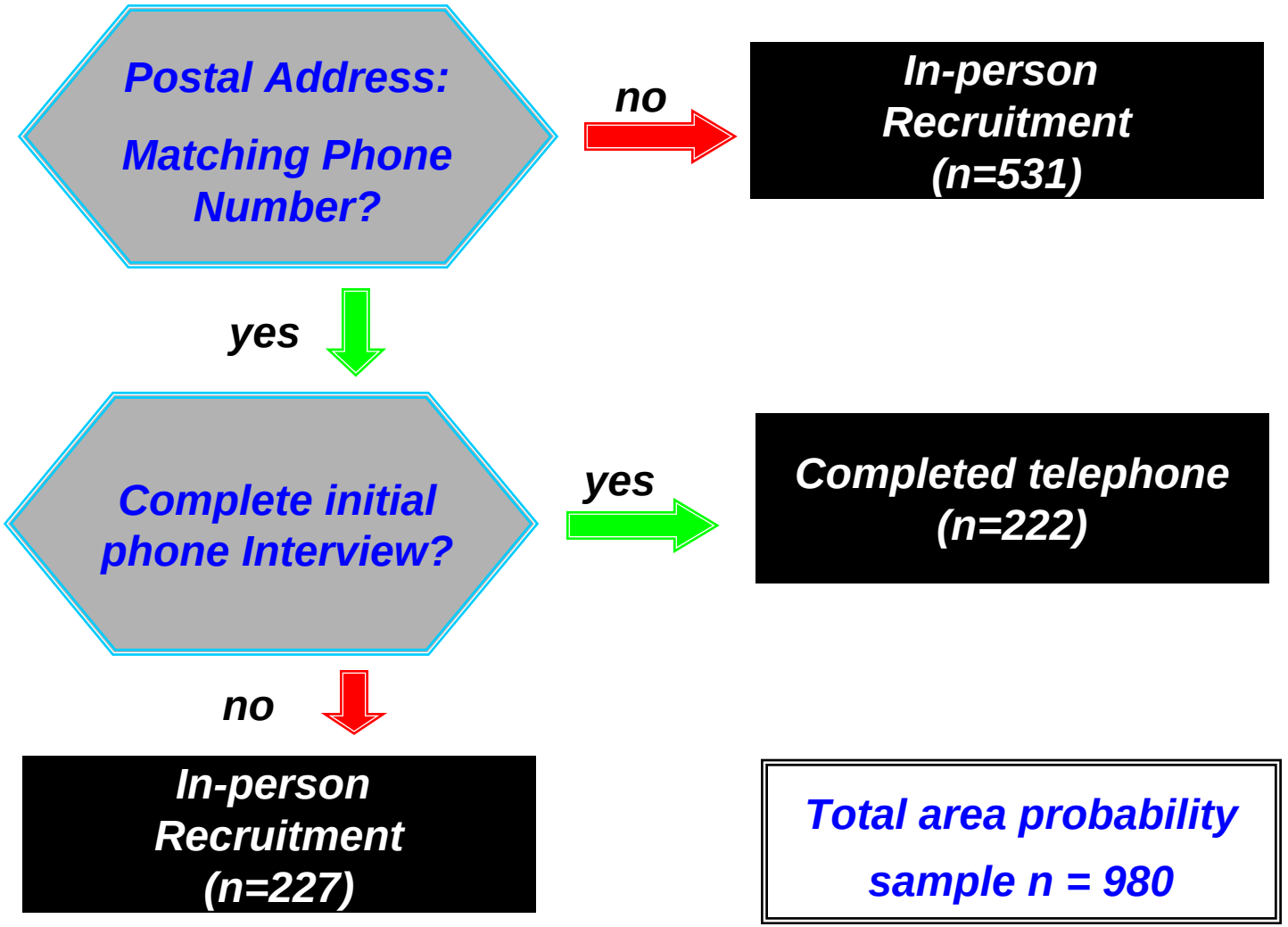
How to explore nonresponse in CHIS 2007?

- **Options considered**
  - Telephone survey with enhanced incentives
  - Short follow-up survey of nonresponders with an incentive
  - Add modes: web and mail
  - Telephone plus in-person component
    - Most promise of initial options considered

- **Telephone plus in-person—options**
  1. Follow-up RDD nonresponders in-person
  2. Separate area probability sample to complement the RDD sample

  - Selected option 2 largely due to cost concerns of geographic dispersion of RDD nonresponders within a county

CHIS 2007 area probability sample design



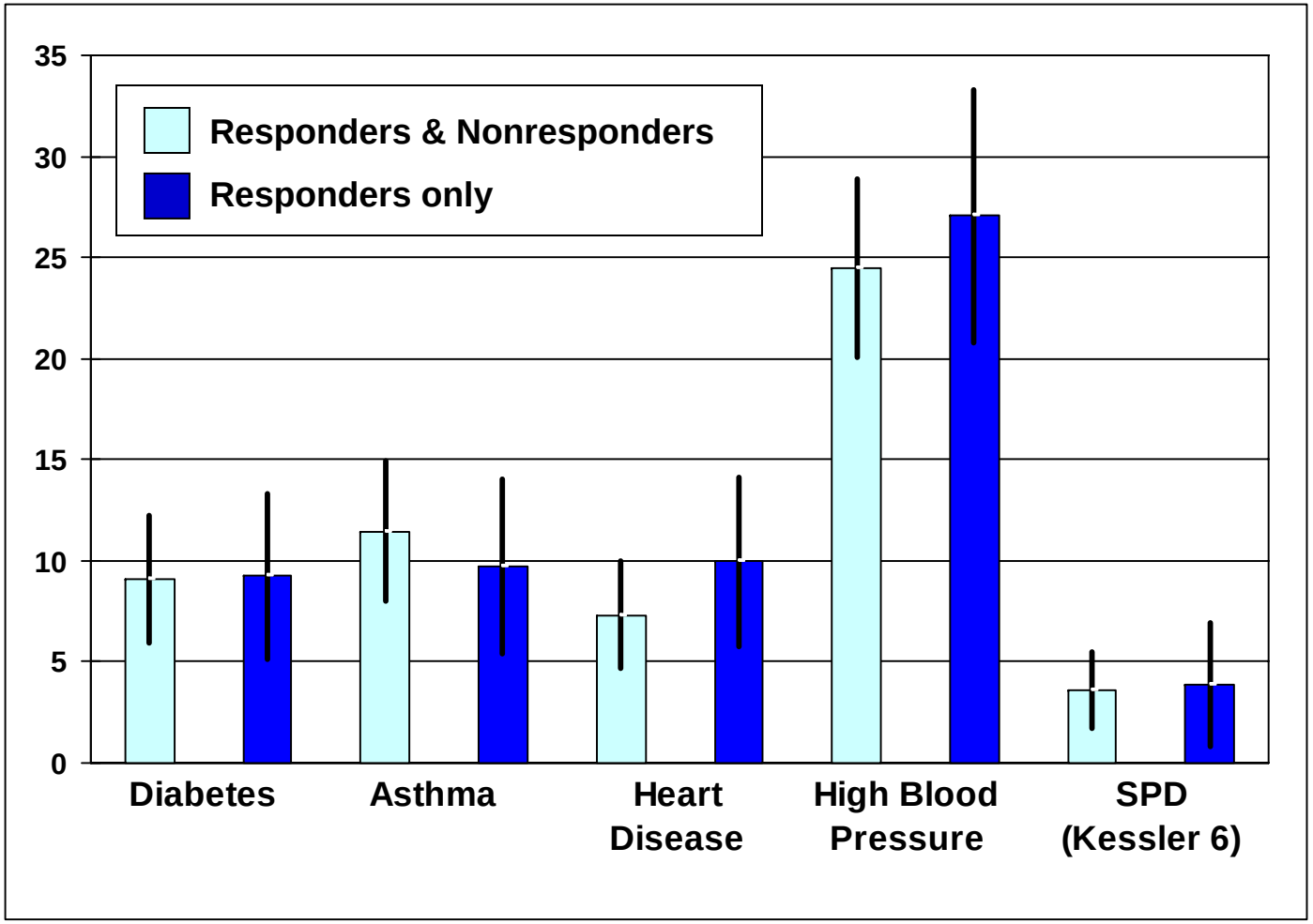
CHIS 2007 nonresponse study

- **Use data from the "matched" (telephone number to address) area probability sample (N = 449)**
  - Compare responders (N = 222) vs. combined responders and nonresponders (N = 222 + 227)
  - Estimates are adjusted for selection probability and population totals only (NOT adjusted for age, sex, race/ethnicity, SES)

- **Demographics**
  - Relative to the responders, nonresponders were:
    - Younger
    - **Latino**
    - **Live in HHs with children**
    - Lower levels of educational attainment
    - Lower income

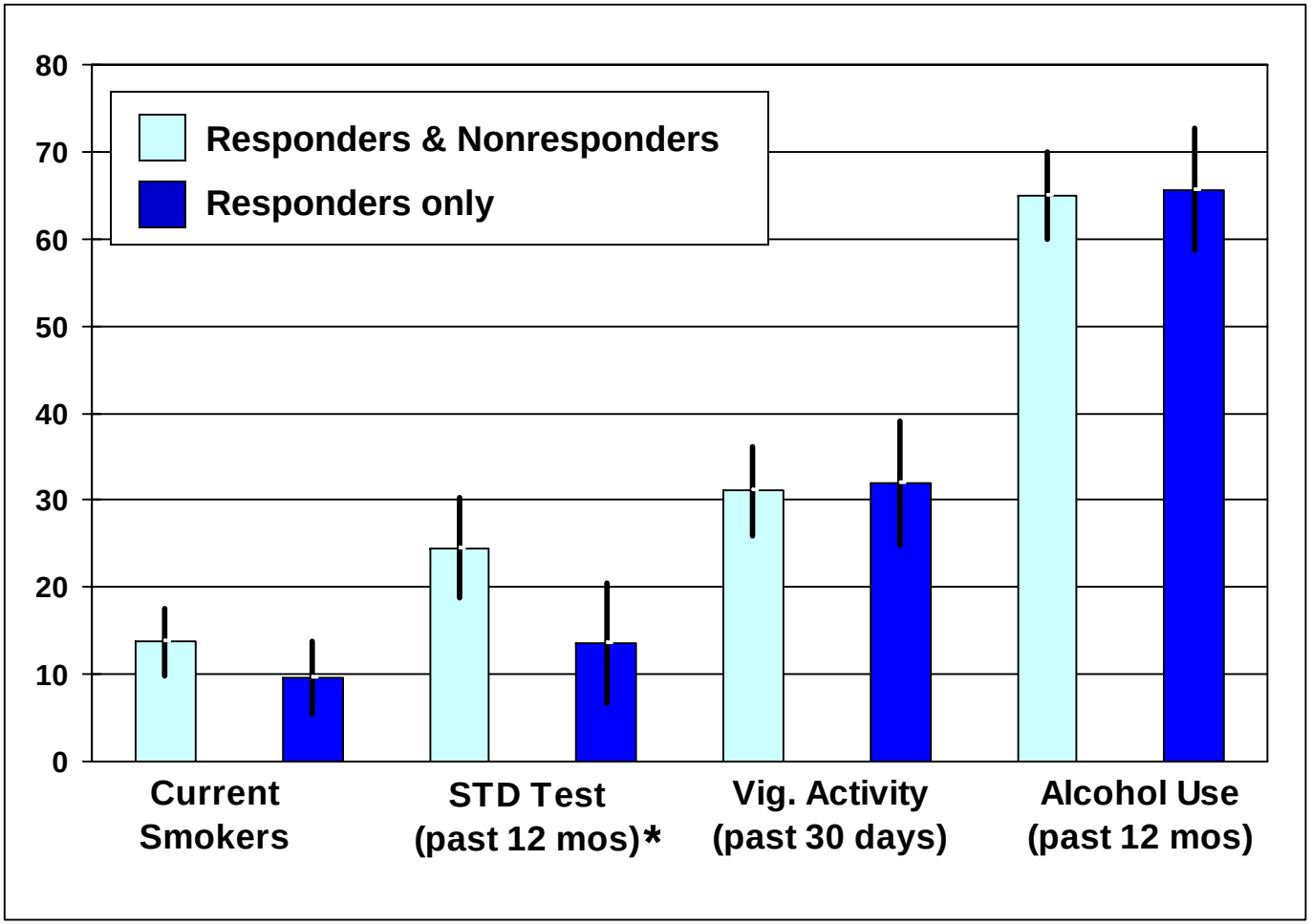
CHIS 2007 nonresponse study findings

- **Health conditions (adjusted)**



CHIS 2007 nonresponse study findings

- **Health behaviors (adjusted)**

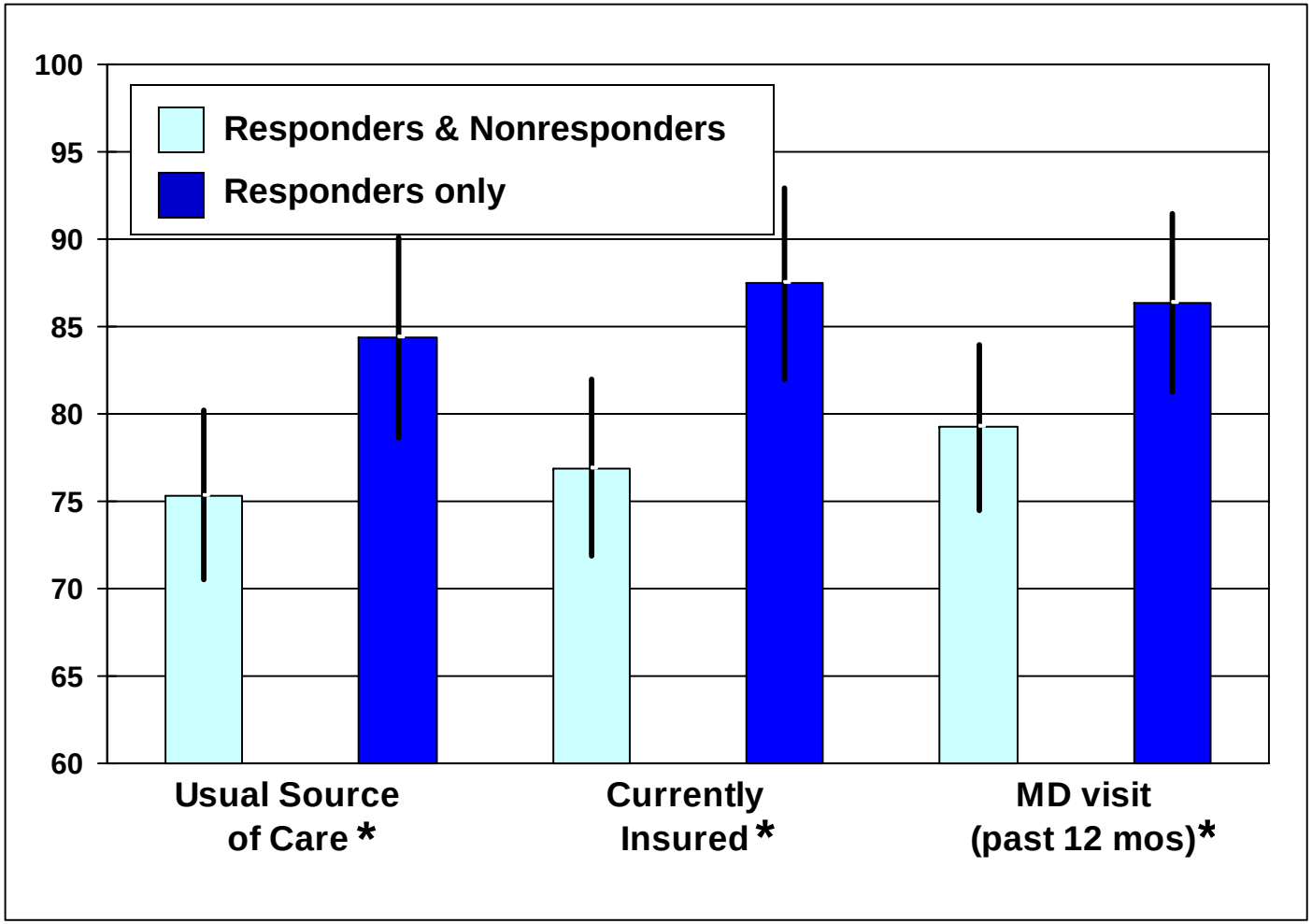


california health interview survey

* Statistically sig.

CHIS 2007 nonresponse study findings

- **Health care access and utilization (adjusted)**



* Statistically sig.

CHIS 2007 nonresponse study findings

- **Summary of nonresponse bias findings**
  - Health conditions – 0 of 9 measures tested showed significant bias
  - Health behaviors – 1 of 9 measures tested showed significant bias
  - Health care access and utilization – 4 of 12 measures tested showed significant bias

- **Would controlling for demographics reduce/eliminate bias?**
  - Add controls consistent with elements in final weights
  - Biased characteristic = Responder/Nonresponder (dummy variable)

    [+ weighting variables (age, gender, race, ethnic, educ, home own, children)]

  - *Only STD testing shows significant bias after adding controls*

CHIS 2007 nonresponse bias assessment conclusions

- **Nonresponse study conclusions**
  - More than 40 common CHIS estimates in 3 health related areas (health conditions, health behaviors, and health care assess and utilization) were tested for nonresponse bias
  - After adjusting for selection probability and controlling for demographic characteristics, only 1 estimate showed significant nonresponse bias (STD test in past 12 months)
  - Based on the preliminary analysis of data from the CHIS 2007 area probability sample in Los Angeles, CHIS estimates do not demonstrate significant bias due to nonresponse