Beyond the USPS CDS File: Extending the Coverage of ABS Frames

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2012 Joint Statistical Meetings
San Diego, CA
August 2, 2012

Acknowledgements

- The presentation is sponsored by RTI International's Statistics and Epidemiology, with the research included in the presentation stemming from ongoing methodological work conducted under the contract for the National Survey on Drug Use and Health (NSDUH). The NSDUH is funded by the Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality under contract no. 283-2008-00004C and project no. 0211838.
- The views expressed in this presentation do not necessarily reflect the official position or policies of SAMHSA or the U.S. Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

Overview

- Background/Motivation
- Address-Based Sampling for In-Person Surveys
- The problem of rural undercoverage
  - Existing methodology for improving coverage
  - Potential for using supplemental lists
- USPS No-Stat File
  - Coverage evaluation
  - Cost evaluation
  - Conclusions
  - Future Research

Background/Motivation

- As part of a methods study, RTI investigated the use of a hybrid sampling frame for the National Survey on Drug Use and Health (NSDUH) that utilizes address-based sampling (ABS).
- Research showed that ABS coverage of the NSDUH target population in urban areas is very high, but rural coverage remains problematic.
- This research investigates cost effective methods for improving rural ABS coverage to improve the efficiency of the proposed NSDUH hybrid frame.

Address-Based Sampling for In-Person Surveys

- Address-Based Sampling (ABS) frames derived from USPS Computerized Delivery Sequence (CDS) File
- Alternative to traditional field enumeration
  - Cost savings
  - More timely
- Coverage in urban areas is reasonable (~95%[1])
- Coverage in rural areas remains problematic (~72%[1])

[1] Shook-Sa and Currivan, 2011

Improving ABS Coverage in Rural Areas

- Existing techniques for improving rural coverage
  - Enhanced Listing
  - Field Supplementation
  - Hybrid ABS/Field Enumerated Frames
- Supplemental lists prior to sample selection
  - Commercial Databases of addresses
  - USPS No-Stat file?
- Can the No-Stat file be used to improve the efficiency of the proposed NSDUH hybrid frame?

USPS No-Stat File

- The USPS No-Stat file is a supplemental list to the CDS file containing:
  - Active Addresses
    - Locatable addresses for throwbacks on rural/highway contract routes
  - Non-Active Addresses
    - Addresses on rural/highway contract routes vacant for 90 days or longer
    - Addresses of residences under construction (new growth)
  - Overlap with the CDS file
    - Units associated with drop points on the CDS file (approximately 3%)
- Made available to companies with CDS licenses starting in 2009

USPS No-Stat File (Continued)

- 7.0 M unique residential, locatable addresses
- 9% are classified as active
- 4.2 M (59%) are in rural census blocks

No-Stat Evaluation

- Evaluated the coverage gains that the No-Stat file could provide for the proposed NSDUH hybrid frame
- Evaluated cost effectiveness of supplementing the ABS frame with addresses from the No-Stat and compared to other methods (CDS only, field enumeration)

NSDUH Background

- The NSDUH provides national, state and substate data on substance use and mental health in the civilian, noninstitutionalized population age 12 and older.
- Data are collected on a quarterly basis each year.
- Approximately 700 field interviewers (FIs) staffed.
- Approximately 140,000 household screenings and 67,500 interviews completed annually.
- Conducted by RTI under contract with SAMHSA.

NSDUH Background (Continued)

- NSDUH has a field enumerated area frame
- Segments are collections of Census Blocks
- State and sub-state estimates make rural coverage very important, so an ABS only frame is not feasible
- If coverage adequate, an ABS/field enumerated hybrid frame could be a cost-effective option for the NSDUH
- Representative sample of dwelling units in the US

Coverage Evaluation

- Stratified sample of Quarter 2 2010 NSDUH eligible sampled dwelling units
- Adjusted household weights for subsampling and post-stratified to Census 2010 household totals by state

Segment Type	Num. Segments	Num. Eligible SDUs	Subsample
Rural	321	8,114	2,434
Rural/Urban Mix	276	7,270	1,097
Urban	1,177	28,398	1,177
Total	**1,774**	**43,782**	**4,708**

Coverage Evaluation (Continued)

- Matched 4,708 subsampled eligible dwelling units to commercially available versions of the CDS and No-Stat files (April, 2010)

Final Match Status	Count	Percent
Match to CDS	3,850	82%
Match to No-Stat	133	3%
Non-Match	725	15%
Total	**4,708**	**100%**

Coverage Results - Households

Frame Source	Overall	
	Coverage	95% CI
CDS	93.2	(92.0, 94.2)
No-Stat	1.2	(0.8, 1.6)
Total	**94.3**	**(93.2, 95.3)**

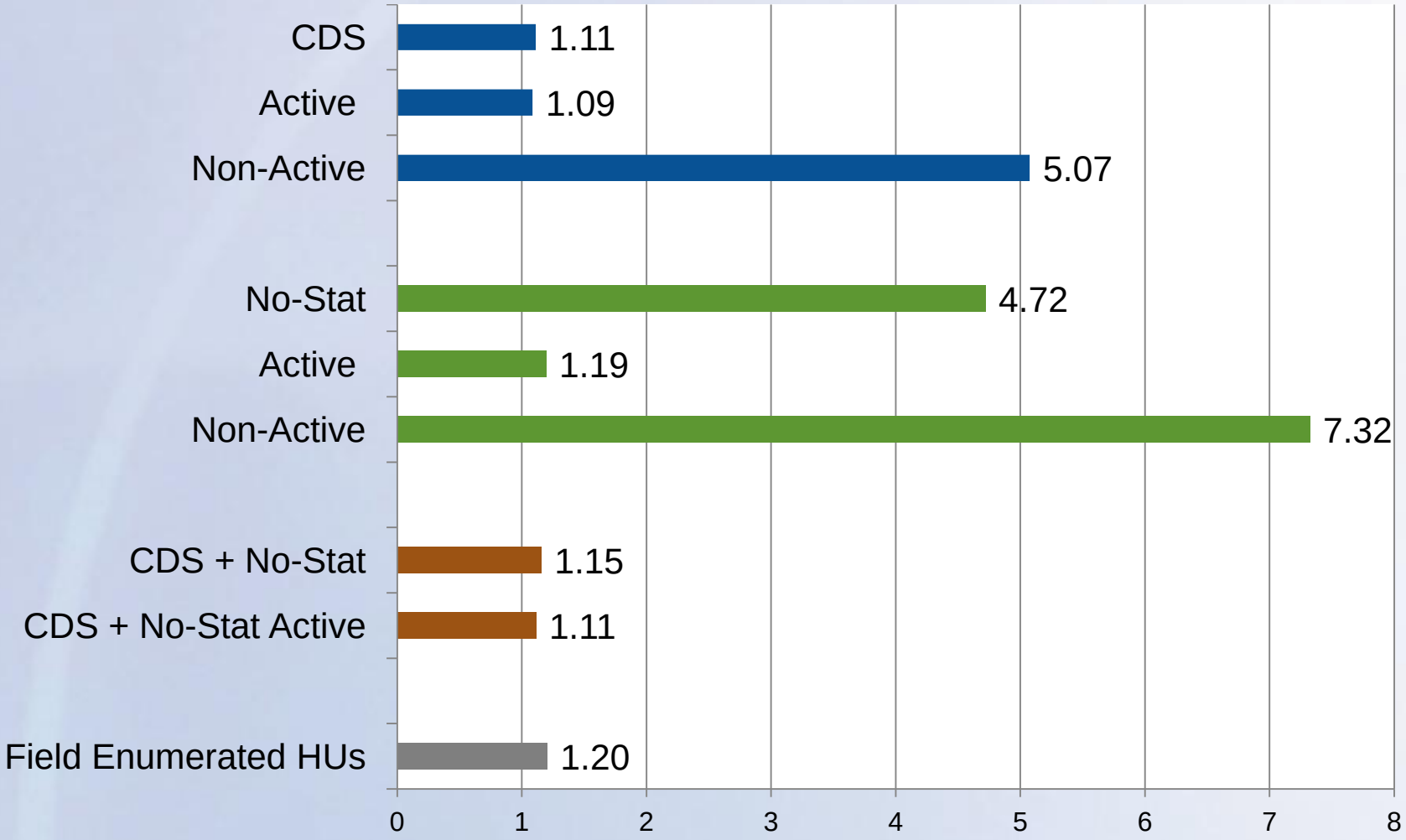
Coverage Results – Households by Urbanicity

Frame Source	Rural		Rural/Urban Mix		Urban	
	Coverage	95% CI	Coverage	95% CI	Coverage	95% CI
CDS	72.8	(68.3, 76.8)	94.4	(92.1, 96.0)	97.9	(96.7, 98.6)
No-Stat	3.8	(2.6, 5.6)	1.7	(0.9, 2.9)	0.4	(0.1, 1.0)
Total	**76.6**	**(72.2, 80.5)**	**96.0**	**(94.2, 97.3)**	**98.2**	**(97.1, 98.9)**

No-Stat Coverage Results- Rural Households

No-Stat Address Type	Rural	
	Coverage Increase	95% CI
Active	2.2	(1.3, 3.8)
Non-Active	1.6	(1.1, 2.3)
Total	3.8	(2.6, 5.6)

Addresses Fielded per Eligible Household



Conclusions

- The No-Stat file improves ABS coverage
  - 1.3 M occupied HHs contained on the No-Stat file:

    95% CI (0.9 M – 1.8M)
  - Improves rural coverage by ~4%
- Hybrid frame still needed for complete coverage
- No-Stat addresses could be cost effective
  - No-Stat active addresses do not sizably increase CDS hit rate
  - CDS + No-Stat frame still lower hit rate than a field enumerated frame

Conclusions (Continued)

- National studies or studies with budget concerns – include No-Stat active addresses
- Estimates for rural areas and studies where complete coverage is needed – consider including all No-Stat addresses

Future Research

- Clustered nature of No-Stat addresses could provide cost savings by moving more segments to ABS in a hybrid design
- No-Stat addresses for multi-mode designs
  - Mailing to No-Stat addresses
  - Phone append and accuracy rates for No-Stat addresses for mixed mode designs
- Accuracy of No-Stat indicators
  - New Growth
  - Drop Units

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