



STATE HEALTH ACCESS  
DATA ASSISTANCE CENTER

## How Surveys Differ in the Quality of Reported Medicaid Enrollment: State Surveys and the CPS

JSM

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### CPS analysis

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## What is the Medicaid Undercount?

- Surveys produce lower counts of people on Medicaid than administrative records indicate are enrolled
- Survey measurement error contributes to discrepancy a couple of ways
  - Medicaid recipients report they have NO coverage
  - Medicaid recipients report coverage other than Medicaid
- Surveys are only source of several policy relevant estimates

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## Our Research Questions

1. What do Medicaid enrollees say in questions about health insurance coverage?
2. What factors are associated with accurate and inaccurate reports of coverage?

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## Answering Our Questions (1) State Surveys

- “Medicaid undercount experiment” (MUE) in California, Florida and Pennsylvania:
  - Using administrative enrollment records, sampled known Medicaid enrollees who completed a health survey
  - MUE surveys of known enrollees were conducted at the same time, using the same survey, and the same vendor as statewide general population survey that provide state estimates of health insurance coverage
  - Verified enrollment at time of survey

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## Medicaid Undercount Experiment (MUE) Surveys

State MUE:	Number of Completes (Response Rate-AAPOR RR4)	Analytic Sample Size
California: Medicaid adults	1,423 (41.7%)	1,316
Florida: Medicaid adults (<65) & children	1,087 (29.8%)	940
Pennsylvania: Medicaid adults and children	1,582 (55.9%)	1,392

Analytic sample exclusions: Those in institutional settings (e.g., nursing homes, group quarters); missing coverage or health status data; **not enrolled in Medicaid at time of survey.**

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## Answering Our Questions (2) CPS Linked Data

- Linked 2000 – 2002 MSIS data with 2000 CPS-ASEC data where SSN match possible
  - MSIS missing 9%; CPS missing 26%
    - CPS Data re-weighted to account for sample loss
  - Other limitation
    - Universe differences across data files (group quarters)
- Analysis based on *reported* health insurance data only (exclude edited and imputed CPS cases)

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## Analytic Strategy

- Present weighted results of self-reported health insurance coverage
- Run multivariate logistic regressions to examine factors associated with
  - accurate reports of Medicaid coverage
  - misreports of uninsurance

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# Multivariate Logistic Regressions

## Dependent variables

- “Any Medicaid” = 1
- “Uninsured” = 1

## Independent variables (IVs) in two categories: (1) characteristics of enrollees and (2) characteristics of enrollment

- IVs *common* to state survey & CPS models
  - Age, gender, race/ethnicity, income as percent of poverty
  - Receipt of services (CA state survey only)
  - SSI, TANF, managed care, dual eligibility
- IVs *unique* to state survey models
  - US born, education, employment, survey language, self-reported health status, partial coverage
- IVs *unique* to CPS models
  - Enrollment in survey month, intensity and recency of coverage, receipt of services, relationship to survey reference person, state

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## Q1: What do Medicaid enrollees say about their coverage

Self-Reported Coverage	State Surveys			CPS
	CA	FL	PA	
Any Medicaid	83.1%	87.0%	79.9%	58.9%
Otherwise Public	1.7%	2.7%	9.2%	9.5%
Otherwise Private	4.7%	5.4%	7.5%	14.6%
Uninsured	10.4%	4.9%	3.4%	16.9%

### Health insurance measurement:

- All provide a list of insurance types; verify uninsurance for those saying “no” to all types.
- State survey ask about *current* health insurance coverage.
- The CPS asks about insurance coverage during the *prior calendar year*.

- Health insurance series later in survey for CA and CPS

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## Q2: Factors Consistently Associated with *Correctly* Reporting Medicaid

### Those who get it right...

- State surveys and CPS factors:
  - Lower income households
  - Age and relationship: reports of children's coverage more likely to be correct
  - Those with more contact with health care and social services (e.g., received medical care, worse self-reported health status, receipt of SSI and TANF)
- State surveys factors:
  - Those who are unemployed
  - Those enrolled in Medicaid managed care and receiving full benefits
- CPS factors:
  - Those with more intense and recent enrollment
  - Accuracy varies across states

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## Q2: Factors Consistently Associated with *Falsely* Reporting Being Uninsured

### Those who get it wrong...

- State surveys and CPS factors:
  - Age and relationship (e.g., 18 to 64 year olds misreport more than those 65 and above; adults and parents of child enrollees)
  - Those with less contact with health care and social services (e.g., no medical care received, better self-reported health status, no receipt of SSI and TANF)
  - Those enrolled in the FFS sector
- State survey factors:
  - Those receiving partial Medicaid benefits
- CPS factors:
  - Those with less intense and less recent enrollment
  - Misreporting varies across states

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## Summary of Logistic Results

- Some characteristics of recipients are associated with *accurate* reports of Medicaid participation (esp. age and poverty); fewer are predictive of *misreports* of uninsurance
- Characteristics of program enrollment such as service sector (e.g., managed care), the receipt of other public benefits are consistently highly predictive in their impact on *accurate* reports of Medicaid participation and *misreports* of a lack of insurance
- For the CPS, recency and intensity of enrollment, and relationship of reference person impact accuracy of measurement

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## Summary of Results

- Contrary to long held assumptions, Medicaid enrollees are fairly accurate reporters of point in time insurance status; fewer falsely report being uninsured than believed
- Results point to role of measurement error
  - Respondents are reasonably good at reporting if they do or do not have coverage
  - Respondents are somewhat less accurate reporters of specific types of coverage
  - Errors are greatest in the CPS
- Likely candidates for imputing Medicaid status:
  - Poverty, age, relationship to reference person

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## Conclusions

- Medicaid undercount is primarily an issue of measurement error
- Consistency across studies suggest ways to reduce measurement error
  - Attend to scope of questionnaire/survey context—health survey
  - Question placement—early or late in survey
  - Reference period for health insurance questions—current insurance or insurance in prior year (CPS)
  - Perhaps consider inclusion of questions about program characteristics or program participation to improve Medicaid reporting
- Results should reduce uncertainty about using survey estimates of coverage to inform policy

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## Issues to consider

- Unit non-response and implications for bias to health insurance coverage estimates
  - State surveys are RDD -- Falling response rates and rise of cell phone only households create problems
- Need to learn more about bias introduced by inability to link all MSIS and CPS cases
- Not enough is known about potential for “overcounts” in administrative records
- Acknowledge that Medicaid undercount is but one form of measurement error. Likely that some who are uninsured report insurance.

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- Backup material



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## Medicaid Undercount Experiment (MUE) Surveys

State MUE:	MUE Sample Frame* (Survey Administration Period)	Number of Completes** (Response Rate***)	Sample Exclusions	Analytic Sample Size
California	Medicaid adults enrolled December 2003 (February - May 2004)	1,423 (41.7%)	8 group setting; 24 missing coverage data; 66 not enrolled at time of survey; 7 missing health status; 2 missing country of birth	1,316
Florida	Medicaid adults (<65) & children enrolled August 2004 (September, November 2004)	1,087 (29.8%)	1 missing coverage data; 1 unsure of coverage; 58 not enrolled at time of survey; 81 non-representative cases over age 65; 4 missing health status	940
Pennsylvania	Medicaid adults and children enrolled April 2004 (June - September 2004)	1,582 (55.9%)	39 missing coverage data; 4 unsure of coverage; 104 not enrolled at time of survey; 42 not eligible; 1 missing health status	1,392

\* Sample frame excludes those in institutional settings (e.g., nursing homes, group quarters).

\*\* The number of completes reported are those for whom a match in the administrative data was possible.

\*\*\* Reported response rates are based on an AAPOR RR4 calculation. The response rate is calculated for all cases completing a survey including those for whom a no match in the administrative data was possible and those no longer enrolled at the time of the survey.

NOTE: MUEs administered in conjunction with statewide RDD surveys.



## Health Insurance Questions

- Design of Questions
  - CA MUE: sampled individual only; CHIS: person level loop for sampled individuals (adults, adolescent, child versions)
  - FL surveys: household level loop
  - PA surveys: person level loop
- Exhaustive list of questions about current sources of insurance (multiple responses allowed)
  - CA surveys: list of public insurance followed by private
  - FL and PA surveys: list of private insurance followed by public
- Series Location
  - CA surveys: omnibus health survey with questions in 8<sup>th</sup> section
  - FL and PA surveys: immediately following introduction and household enumeration



## Q2: Factors Associated with Correctly Reporting Medicaid (= 1)

Variables	California		Florida		Pennsylvania	
	Odds ratio		Odds ratio		Odds ratio	
<b>Survey data</b>						
Male	0.88		0.93		<b>0.72</b>	*
Non-Hispanic Black	0.87		<b>0.45</b>	***	0.72	
Hispanic	0.66		1.15		0.89	
Non-Hispanic Other	1.17		2.13		4.60	
Income < 100% FPL	<b>3.39</b>	***	<b>2.23</b>	**	<b>2.68</b>	***
Income 100 to 199% FPL	<b>2.26</b>	**	1.03		1.42	
Less than High School (adult or parent)	0.70		1.17		<b>1.86</b>	**
High School Degree (adult or parent)	0.97		1.01		1.37	
Unemployed (adult or parent)	<b>2.60</b>	***	<b>1.83</b>	*	<b>1.84</b>	***
Survey in English language			0.50			
Survey in Spanish language	1.11					
Survey in other non-English language#	0.67					
US born	1.18					
Self-reported poor/fair health	<b>2.17</b>	***	0.79		1.29	
Age less than 18~			<b>4.42</b>	***	1.12	
Age 65 and over	1.56				<b>0.20</b>	***
<b>Administrative data</b>						
Medicaid managed care enrollment	<b>1.73</b>	*	<b>4.01</b>	***		
Non-elderly Dual eligibles	1.12		<b>9.78</b>	***	3.06	
Social Security Income (SSI)	<b>10.69</b>	***	<b>24.44</b>	***	1.12	
Temporary Assistance for Needy Families (TA	<b>18.31</b>	***	<b>8.26</b>	***	<b>3.16</b>	**
21 Full medical benefits, no cash benefits	<b>3.61</b>	***	<b>7.15</b>	***	<b>1.94</b>	*



## Q2: Factors Associated with Falsely Reporting Being Uninsured (= 1)

Variables	California		Florida		Pennsylvania	
	Odds ratio		Odds ratio		Odds ratio	
<b>Survey data</b>						
Male	1.44		0.82		<b>2.71</b>	**
Non-Hispanic Black	0.38		0.80		<b>2.57</b>	*
Hispanic	2.00		0.50		1.00	
Non-Hispanic Other	1.42		0.36		0.84	
Income < 100% FPL	2.31		1.23		1.32	
Income 100 to 199% FPL	2.52		1.23		1.20	
Less than High School (adult or parent)	1.40		1.52		1.27	
High School Degree (adult or parent)	0.72		1.87		0.57	
Unemployed (adult or parent)	0.72		<b>0.43</b>	*	0.68	
Survey in English language			0.73			
Survey in Spanish language	0.85					
Survey in other non-English language#	0.44					
US born	1.12					
Self-reported poor/fair health	<b>0.57</b>	*	1.26		0.47	
Age less than 18~			<b>0.21</b>	***	<b>0.11</b>	***
Age 65 and over	<b>0.09</b>	***			a	
<b>Administrative data</b>						
Medicaid managed care enrollment	<b>0.36</b>	**	<b>0.22</b>	***		
Non-elderly Dual eligibles	<b>0.16</b>	*	<b>0.07</b>	***	<b>0.04</b>	***
Social Security Income	<b>0.05</b>	***	0.25		a	
Temporary Assistance for Needy Families (TA	<b>0.06</b>	***	0.68		a	
22 Full medical benefits, no cash benefits	<b>0.34</b>	***	0.82		<b>0.34</b>	**



## What are the factors associated with measurement accuracy/error?

Selected Logistic Regression Odds Ratios for Not Replying Enrolled in Medicaid and Replying Uninsured Among Those CPS Cases With Reported Data that were Linked to the MSIS (**Reference Categories is the Linked Data File Average**): 2000-2001

Variable	Odds Ratio for Not Reporting Medicaid	Odds Ratio for Reporting Uninsured
<b>Length of Time Enrolled and Recency</b>		
Enrolled at time of Survey	0.7	0.7
Enrolled all of last year	0.4	0.5
<b>Race/Ethnicity</b>		
Hispanic	1.3	1.7
Black	N/S	N/S
White	0.6	0.5
<b>Selected Age</b>		
Age 0-5	0.6	0.4
Age 6-14	0.8	3.7
Age 15-17	0.8	0.6
Age 18-44	1.4	6.1



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## Additional Covariates

Variable	Odds Ratio for Not Reporting Medicaid	Odds Ratio for Reporting Uninsured
<b>Income</b>		
No Income Reported	3.1	3.3
Poverty Ratio 0-49	0.2	N/S
Poverty Ratio 50-74	0.4	N/S
Poverty Ratio 75-99	0.7	1.4
Poverty Ratio 100-124	N/S	N/S
Poverty Ratio 125-149	1.4	N/S
Poverty Ratio 150-174	1.5	0.7
Poverty Ratio 175-199	2.2	N/S
Poverty Ratio 200+	3.9	N/S
<b>Utilization and Managed Care</b>		
Utilization Noted but No Managed Care	0.6	0.6
Utilization Noted, Managed Care	0.5	0.5
No Utilization Noted, Not on Managed Care	2.9	N/S
No utilization Noted, on Managed Care	1.4	N/S
<b>Other Program Participation</b>		
SSI Recipient indicated on MSIS	2.0	2.4
TANF indicated on MSIS	0.8	0.8
Dual eligible indicated on MSIS	0.7	0.3



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# State Odds Ratios

Variable	Odds Ratio for Not Reporting Medicaid	Odds Ratio for Reporting Uninsured
<b>Selected States</b>		
AL	N/S	1.7
AR	1.3	1.4
CA	1.5	N/S
CO	1.5	0.7
DE	1.9	0.5
FL	N/S	1.3
HA	1.9	0.5
LA	1.5	1.5
MD	2.0	N/S
MA	0.6	0.5
MN	N/S	0.6
NH	0.5	0.6
NJ	1.4	N/S
ND	N/S	1.7
OK	1.5	2.1
PA	1.7	N/S
RI	0.5	0.5
SD	N/S	2.5
TX	N/S	1.7
VT	0.5	0.7
WA	1.6	1.5

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All Reported Odds Ratio Significant at  $p < .05$  level

