Characteristics of Medicare Beneficiaries with Part D Coverage: NHANES 2003-2004 Linked to 2006 Medicare Part D Data

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Background

- Medicare Part D (Medicare prescription drug benefit)
  - Federal program that subsidizes the costs of prescription drugs for Medicare beneficiaries
  - Enacted as part of the Medicare Modernization Act of 2003
  - Effective date: January 1, 2006
  - <u>Most</u> Medicare beneficiaries must affirmatively enroll in a Part D Plan to participate
  - Enrollment
    - 2006: 21.8 million Medicare beneficiaries
    - 2011: 29.6 million Medicare beneficiaries

Background

- Linkage to National Health and Nutrition Examination Surveys (NHANES)
  - Medicare enrollment and claims data are available for NHANES respondents who agreed to provide personal identification data to NCHS and for whom NCHS was able to match with Medicare administrative records

  - CMS provided NCHS with Medicare Part D data for 2006 and 2007

Background

- Unique opportunity
  - Characterize US adults who enrolled in Part D benefits during 2006, the first year the benefit was offered

  - Potential for longitudinal research on prescription drug use

Study Objective

- Describe the population available from the linkage of NHANES 2003-2004 data to 2006 Medicare Part D data

- Examine the demographic and health characteristics of Medicare beneficiaries aged 65+ who participated in the 2003-2004 NHANES and who enrolled in Part D during 2006

National Health and Nutrition Examination Survey (NHANES), 2003-2004

- Cross-sectional survey of the civilian, non-institutionalized U.S. population
- Since 1999, conducted annually by CDC/NCHS
- Uses a complex, multistage probability sample design
- All ages
- In 2003-2004 (n=10,122), oversampled:
  - Low-income persons, adolescents (12-19 years old), people 60 years and older, non-Hispanic Blacks, and Mexican Americans

Detailed In-Home Interview Followed by Standardized Physical Exam at a Mobile Center

Interview

- **Doorstep screening**

- **CAPI interviewing with portable keyboard**

Exam

- **Dietary intake**

- **Dental exam**

- **Blood draw**

- **Urine collection**

- **Interview**

NHANES-Medicare Linkage

NCHS
- Linkage Eligibility
  - Sufficient personally identifiable data
  - Did not refuse

SSA
- SSA Enumeration Verification System

CMS
- Exact match on SSN, full date of birth, sex

NHANES-Medicare Linkage, continued

- ## Interagency agreement
  - National Center for Health Statistics (NCHS)
  - Centers for Medicare and Medicaid Services (CMS)
  - Social Security Administration (SSA)
  - Office of the Assistant Secretary for Planning and Evaluation (ASPE)

- ## NHANES 2003-2004 → Medicare 2006
  - Denominator file
  - Medicare Part D file
  - Summary Medicare Enrollment and Claims Data (SMEC)

Study Sample and Analysis

- NHANES 2003-2004 linked to CMS files
- Adults 65+ in 2003-2004
- Interview sample weights used to account for differential probabilities of selection, nonresponse, and noncoverage
  - Reweighted to adjust for NHANES respondents who were not linkage eligible or who did not have data in the 2006 Medicare Denominator File
- Estimates were age-standardized using direct method to 2000 US Census population using three age groups: 65-74, 75-84, and 85+
- Statistical analyses conducted using Stata

Covariates

- Socio-demographic characteristics (NHANES)
  - Age, gender, race/Hispanic ethnicity, years of education, poverty to income ratio (PIR)

- Health care utilization and access to care (NHANES)
  - Have routine place for healthcare, number of times received health care (past year), was an overnight hospital patient (past year)

- Self-rated health/Chronic diseases (NHANES)
  - General self-rated health (1=fair/poor; 0=excellent/very good/good)
  - Doctor ever said you have: angina, arthritis, asthma, cancer, chronic bronchitis, congestive heart failure, coronary heart disease, diabetes, emphysema, heart attack, high blood pressure, stroke, or a thyroid problem
  - Chronic disease index (0-1, 2-3, 4+)

Covariates, continued

- Use of prescription medication data in past 30 days (NHANES)
  - Binary variable: Use at least one prescription medication (1=yes; 0=no)
  - Categorical variable: 0-1, 2-3, 4-5, 6+ medications
  - Continuous variable: Mean number of medications
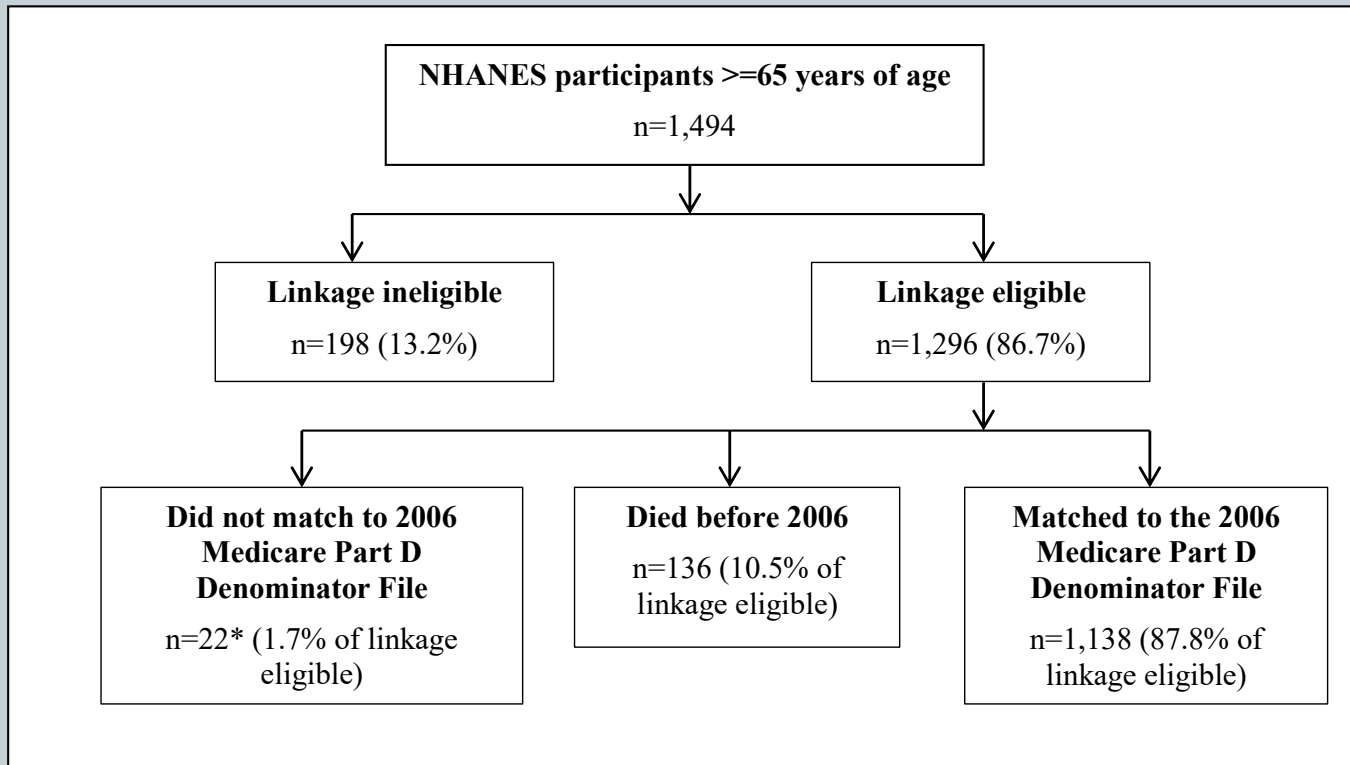
Outcome variable

- During 2006, respondent had at least 1 month of Part D enrollment (CMS data file)

Linkage

Figure 1. Linkage Eligibility of NHANES 2003-2004 Respondents Aged 65 Years and Older at Time of Interview to 2006 Medicare Part D Denominator File

NHANES participants >=65 years of age

n=1,494

Linkage ineligible

n=198 (13.2%)

Linkage eligible

n=1,296 (86.7%)

Did not match to 2006 Medicare Part D Denominator File

n=22* (1.7% of linkage eligible)

Died before 2006

n=136 (10.5% of linkage eligible)

Matched to the 2006 Medicare Part D Denominator File

n=1,138 (87.8% of linkage eligible)

*n=2 matched at some point to the 1999-2006 Medicare Denominator File, but they did not match to the 2006 Medicare Part D Denominator File.

Note: Percentages are not weighted.

Source: NHANES 2003-2004; Medicare Part D Denominator File

Results: Linkage Eligible vs. Ineligible

	Linkage Eligible		Linkage Ineligible	
	%	(95% CI)	%	95% CI
Age				
65-74	47.3	(44.6 - 50.0)	46	(39.0 - 52.9)
75-84	37.7	(35.1 - 40.4)	39.4	(32.6 - 46.2)
85+	15.0	(13.0 - 16.9)	14.6	(9.7 - 19.6)
Sex				
Female	50.8	(48.0 - 53.5)	53.5	(46.6 - 60.5)
Male	49.2	(46.5 - 52.0)	46.5	(39.5 - 53.4)
Race/Ethnicity				
Non-Hispanic White	64.1	(61.5 - 66.7)	64.6	(58.0 - 71.3)
Non-Hispanic Black	12.1	(10.3 - 13.9)	17.2	(11.9 - 22.4)
Mexican-American*	19.1	(16.9 - 21.2)	11.6	(7.1 - 16.1)
Education				
Less Than a High School Degree	41.7	(39.0 - 44.4)	41.8	(34.9 - 48.8)
High School Degree	25.3	(22.9 - 27.6)	25.5	(19.4 - 31.6)
Some College	19.1	(17.0 - 21.3)	20.4	(14.7 - 26.1)
College Graduate or more	13.9	(12.0 - 15.8)	12.2	(7.6 - 16.8)
Poverty Index				
Below Poverty (PIR<1)	15.4	(13.3 - 17.4)	11.9	(6.8 - 16.9)
Low Income (PIR= 1.0 - 1.9)*	37.4	(34.7 - 40.2)	24.4	(17.7 - 31.1)
Middle Income (PIR= 2.0 - 3.9)*	28.2	(25.7 - 30.7)	41.3	(33.6 - 48.9)
High Income (PIR= 4.0+)	19.0	(16.8 - 21.2)	22.5	(16.0 - 29.0)

* $p < 0.05$; adjusted Wald test

n=1,494

Results: Enrollment in Medicare Part D

- Among NHANES 2003-2004 adults aged 65+ who matched to the 2006 Medicare Part D Denominator File (n=1,138)
  - 56.7% were enrolled in Medicare Part D

  - Length of Enrollment
    - 1-6 months: 6.9%
    - 7-11 months: 29.9%
    - 12 months: 63.1%

Results: Enrollees' Sociodemographic Characteristics

	Percent Enrolled in Medicare Part D	(95% CI)
Age		
65-74 (ref)	55.2	(46.5 - 63.9)
75-84	59.3	(51.8 - 66.7)
85+	56.3	(50.4 - 62.2)
Sex		
Male [ref]	52.1	(44.3 - 60.0)
Female	60.0*	(53.4 - 66.6)
Race/Hispanic Ethnicity^		
Non-Hispanic White [ref]	54.6	(47.5 - 61.8)
Non-Hispanic Black	61.4	(47.8 - 75.0)
Mexican-American	76.0*	(66.3 - 85.7)
Education		
Less Than a High School Degree [ref]	71.7	(65.5 - 77.9)
High School Degree	52.4*	(45.0 - 59.7)
Some College	48.0*	(37.0 - 59.0)
College Graduate or more	48.9*	(41.0 - 56.8)
Poverty Index		
Below Poverty (PIR<1) [ref]	79.0	(66.6 - 91.4)
Low Income (PIR= 1.0 - 1.9)	70.7	(66.0 - 75.4)
Middle Income (PIR= 2.0 - 3.9)	45.6*	(36.5 - 54.8)
High Income (PIR= 4.0+)	40.9*	(32.9 - 48.9)

^ Age adjusted

* Significantly different from reference [ref] group (p<0.05)

Results: Enrollees' Self-Rated Health and Chronic Disease Burden

	Percent Enrolled in Medicare Part D	(95% CI)
Self-Rated Health		
Good/Very Good/Excellent [ref]	53.6	(47.0 - 60.3)
Fair/Poor	64.7*	(56.4 - 73.1)
Cancer		
No [ref]	58.4	(52.6 - 64.2)
Yes	51.3*	(42.2 - 60.3)
Diabetes		
No [ref]	54.4	(47.2 - 61.6)
Yes	66.7*	(58.5 - 74.8)

* Significantly different from reference [ref] group ($p<0.05$)

No statistical difference for: angina, arthritis, asthma, chronic bronchitis, congestive heart failure, coronary heart disease, emphysema, heart attack, high blood pressure, stroke, or a thyroid problem

Results: Enrollees' Health Care Access and Utilization; and Prescription Medication Use

- Health care access/utilization—No statistically significant differences
  - Have routine place for healthcare; number of times received health care in the past year; was an overnight hospital patient in the past year

- Prescription medication use in the past 30 days—No statistically significant differences

	Percent Enrolled in Medicare Part D	(95% CI)
Use at Least One Rx		
No [ref]	53.2	(43.5 - 62.9)
Yes	56.9	(50.2 - 63.6)
Rx Categories		
0-1 Meds. [ref]	55.5	(49.0 - 62.0)
2-3 Meds.	58.6	(47.3 - 69.9)
4-5 Meds.	61.4	(53.7 - 69.2)
6+ Meds.	51.2	(39.2 - 63.2)
	No Part D: 4.0	(3.6 - 4.4)
Mean Number of RX	Part D: 3.8	(3.4 - 4.2)

* Significantly different from reference [ref] group ($p<0.05$)

Summary

- 87% of NHANES respondents 65+ in 2003-2004 were linkage eligible
  - Mexican-Americans and low income respondents were more likely to be linkage eligible than ineligible
  - Middle income respondents were less likely to be linkage eligible than ineligible

- 76% of NHANES respondents 65+ in 2003-2004 matched to the 2006 Medicare Part D Denominator File

Summary, continued

- About 57% of Medicare beneficiaries 65+ at the NHANES interview were enrolled in Medicare Part D
- Enrollment associated with:
  - Sociodemographic characteristics: gender, education level, and income level
  - A few measures of baseline health: self-rated health, having diabetes, having cancer
  - Not associated with health care access or utilization
  - Not associated with use of prescription medication at baseline

Limitations

- 2-3 year gap between NHANES interview and Medicare data
  - Do not know how respondents' health or their prescription medication use changed during that period

Future Research

- Examine the effect of automatic enrollment on beneficiary characteristics

- Examine similarities and differences in prescription medication use among NHANES respondents in 2003-2004 and their use in 2006 (among Medicare Part D enrollees)
  - Number of medications
  - Types of medications

Thank You for Your Time!

For More Information:

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