The Medicare Health Outcomes Survey: A Guide for Researchers

Web Conference

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Today's Web Seminar

- Goals
  - Describe the Medicare Health Outcomes Survey (HOS)
  - Explain how to obtain HOS data
  - Illustrate uses of the HOS data for research

Some Brief Introductions

- Centers for Medicare and Medicaid Services (CMS)
- Medicare HOS Partners
  - NCQA
  - HSAG
  - Boston University School of Public Health
  - RTI International
- Today's speakers
  - Vijit Chinburapa - Healthcare Researcher
  - Beth Ellis – Healthcare Researcher
  - Nancy Lees - Research Dissemination Specialist

The Medicare HOS

The Medicare HOS assesses each Medicare Advantage (MA) plan's ability to maintain or improve the physical and mental health functioning of its Medicare beneficiaries over a two-year period.

- Gather valid and reliable health status data in Medicare managed care for quality improvement activities, public reporting, plan accountability, and improving health outcomes
- Launched in 1998 – currently completing 9th year of survey administration
- First Medicare managed care outcomes measure
- More than 2 million beneficiaries surveyed to date

HOS Version 1 (HOSv1) 1998-2005
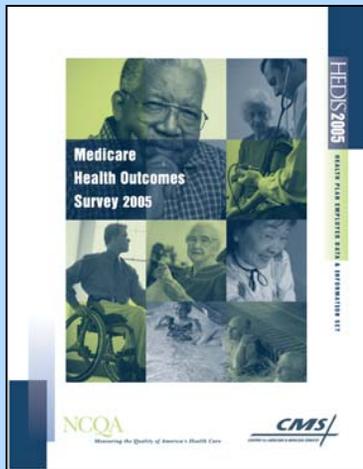
- 36-item health status measure
  - Eight scales
  - Physical and Mental Component Summary Scores (PCS and MCS)
- Activities of daily living
- Healthy days
- Clinical symptoms
- Chronic medical conditions
- Depression screen
- Smoking status
- Demographics
- Proxy status

HOSv1: HEDIS® Measures*
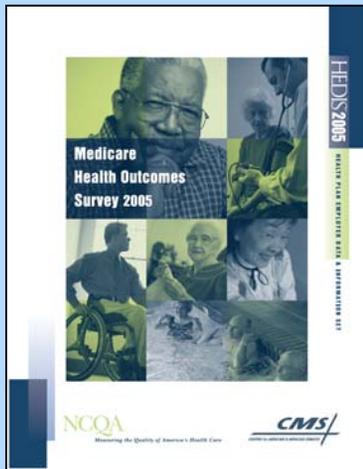
- Management of Urinary Incontinence in Older Adults (MUI)
- Physical Activity in Older Adults (PAO)

*Cross-sectional: results consist of responses of all baseline and follow-up respondents taking the survey during a calendar year

The Health Plan Employer Data and Information Set (HEDIS) is a registered trademark of NCQA.

HOS Version 2 (HOSv2)
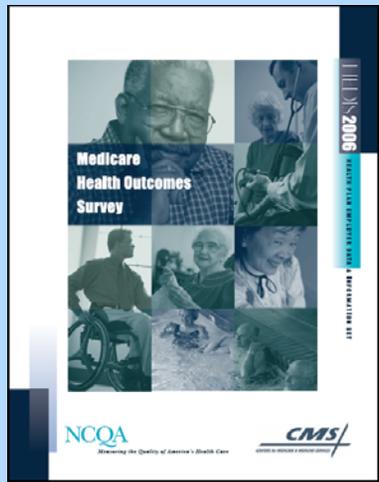
- 12-item health status measure (VR-12)
  - PCS and MCS
- Two additional HEDIS measures
  - Osteoporosis testing in Older Women (OTO)
  - Fall Risk Management (FRM)
- Height and weight for BMI

Sampling and Methodology

- National participation
- Baseline cohort of 1,000 beneficiaries randomly sampled from each participating plan
- Mailed survey
  - Telephone follow-up of non-respondents
- Longitudinal: MA members surveyed at baseline, and respondents resurveyed two years later
  - Each cohort comprises respondents from one baseline and the associated follow-up

Medicare HOS Response Rates

Ranges for Cohorts 1 - 8

Sampling Time	Reporting Units	Sample size	Response Rates
Baseline	161 - 287	159,311-279,135	61.4% - 71.6%
Follow-up	146 - 188	71,549-89,332	77.1% - 85.8%

The HOS Data

- Self-report of health and functional status and impact on day-to-day activities
- Change in health, functional status, etc. over the two-year period
- Cross-sectional HEDIS measures results
- Beneficiary identifiers and demographic information
- Survey administration variables
  - CMS region
  - Percent of survey completed
- Plan characteristics

Why Use the HOS?

- Longitudinal
- Self-report, includes information not typically found in medical records, e.g. ADLs
- Patient-centered outcome measure
  - Measures what is meaningful to patients
- Generic measure of health status, which allows comparisons across:
  - Multiple conditions
  - Multiple sites and settings

Why Use the HOS?
(cont'd)

- Use with other data
  - Combine PCS and MCS measures with other data sources
    - Health plan medical claims data
    - SEER/Tumor Registry
  - In reference to data from other national surveys
    - BRFSS

- Reliable and valid
  - Medicare HOS Evaluation on HOS website
    - http://www.hosonline.org/

- Large sample size and good response rate

HOS Questionnaire

- The HOS Questionnaire
  - To look at it: available on HOS website
  - To use it: apply to NCQA
- How can you use the HOS questionnaire?
  - As pre- and post-test measures for interventions, programs, etc.
  - To examine health status and functioning of different populations
  - To compare results from other populations or samples to MA beneficiaries

HOS Data

- Types of HOS data files
  - Public Use File (PUF)
    - De-identified
    - Some aggregate demographics
    - Available on HOS website
  - Limited Data Set (LDS)
    - Stripped of Protected Health Information (PHI) -- identifiers listed in HIPAA
    - Requires data use agreement [Research Data Assistance Center (ResDAC)]
  - Research Identifiable File (RIF)
    - Includes all identifiers
    - Requires data use agreement (ResDAC)

Research Using the HOS

- Descriptive/exploratory research
  - Examine MA members' functional status, comorbidities, etc., and the effect of these on daily life
  - Describe socio-economic and other issues related to poor functioning
- Intervention research
  - Identify areas for intervention that can improve members' functioning and possibly decrease costs of care and treatment
- Longitudinal research
  - Explore changes in health status and/or functioning over time

Describe Members' Health Status

- **Studies by MA Plans**
  - Examined levels of arthritis pain
    - Compared to other plans in state and to national sample
  - Observed diagnoses of diabetes
    - Compared Medicaid/Medicare dual eligible to Medicare only
- **Described prevalence and management of urinary incontinence among Medicare Managed Care beneficiaries**

  Mardon, R.E., Halim, S., Pawlson, G. & Haffer, S.C. 2006 "Management of Urinary Incontinence in Medicare Managed Care Beneficiaries," *Archives of Internal Medicine* 2006, 166(10), 1128-1133.

Health Status and UI
Mardon et al., 2006

Respondents with Self-Reported UI

PCS and MCS

- No UI: PCS 44, MCS 53.1
- Not a Problem: PCS 43.1, MCS 53.3
- Small Problem: PCS 38.6, MCS 50
- Big Problem: PCS 32.6, MCS 44.9

Legend: PCS, MCS
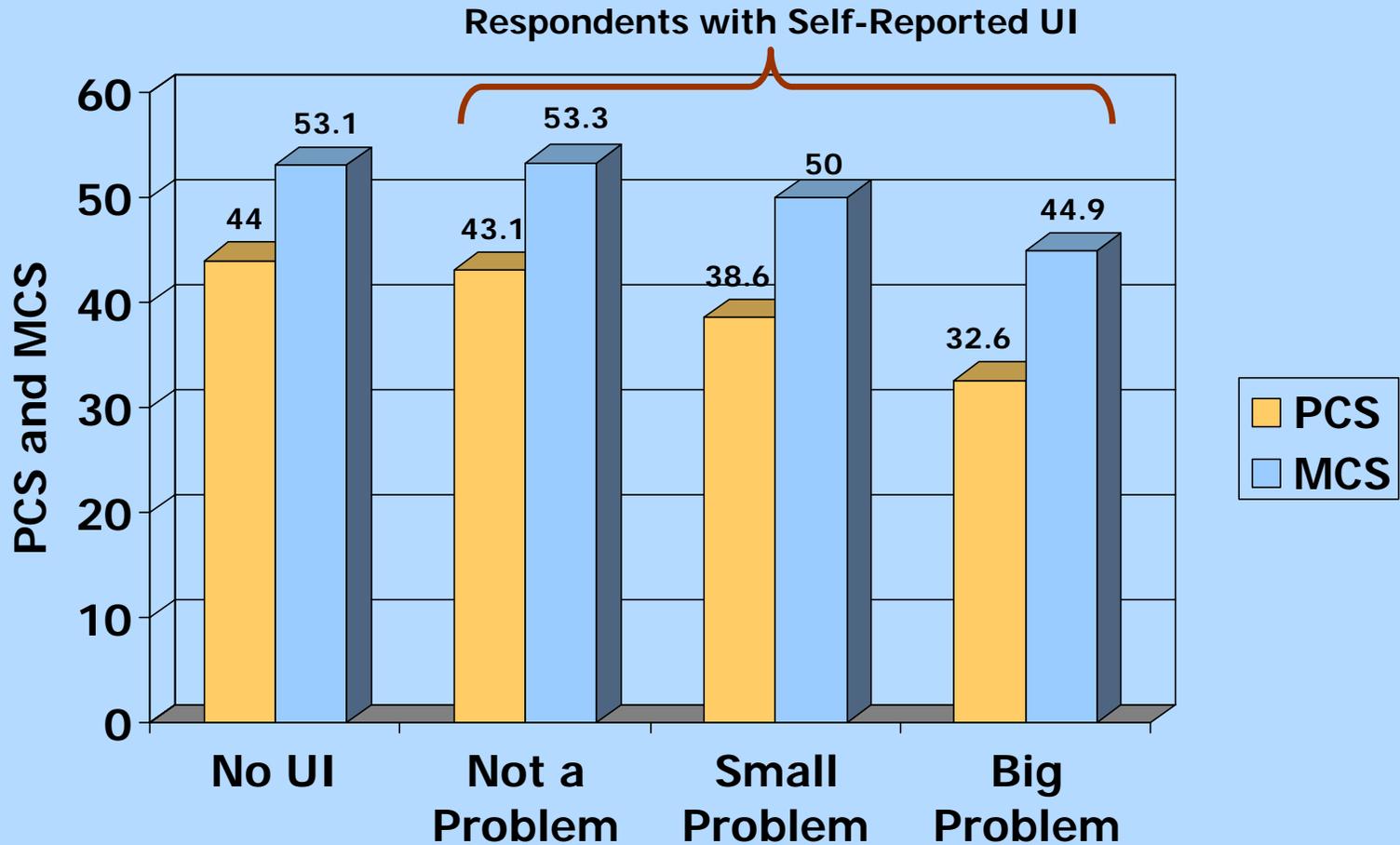
Health Status and UI
Mardon et al., 2006

Independent Variable	Dependent Variable*			
	PCS, Big UI Problem	PCS, Small or Big UI Problem	MCS, Big UI Problem	MCS, Small or Big UI Problem
Urinary incontinence as small or big problem		–3.1†		–2.8†
Urinary incontinence as big problem	–5.1†		–5.0†	
Hypertension	–1.4†	–1.4	–0.0	–0.0
Angina or coronary artery disease	–1.6†	–1.5†	–0.7†	–0.7†
Congestive heart failure	–4.0†	–4.0†	–2.1†	–2.2†
Myocardial infarction history	–0.8†	–0.8†	–0.3	–0.4
Other heart condition (eg, valve condition)	–1.6†	–1.5†	–0.5†	–0.5†
Stroke history	–3.6†	–3.7†	–2.7†	–2.8†
Emphysema, asthma, chronic obstructive pulmonary disease	–4.9†	–4.8†	–2.0†	–2.0†
Crohn disease, ulcerative colitis, inflammatory bowel disease	–1.7†	–1.7†	–3.4†	–3.5†
Arthritis of hip or knee	–5.7†	–5.5†	–0.4‡	–0.3
Arthritis of hand or wrist	–2.3†	–2.2†	–1.5†	–1.5†
Sciatica	–3.4†	–3.3†	–1.9†	–1.8†
Diabetes	–2.9†	–2.8†	–1.1†	–1.0†
Any cancer except skin cancer	–1.5†	–1.4†	–0.6†	–0.5‡

*Small or big UI problem pertains only to those reported recent UI.

†$P\_.001$ compared with the reference category.

‡$P\_.01$ compared with the reference category.

Identify Strategies to Improve Chronic Disease Management

- Identify conditions contributing to poor functional health outcomes

- Assess comorbidity

- Identify opportunities for improved symptom management

- Identify at risk enrollees

  Bierman AS, Lawrence WF, Gandek B, Sinclair SJ. Symptom Severity and Chronic Conditions: Using the Medicare Health Outcomes Survey to Identify Opportunities to Improve Outcomes of Care. (Unpublished Manuscript)

Identify Conditions Contributing To Poor Functional Health Outcomes

Geriatric Syndrome and PCS Scores
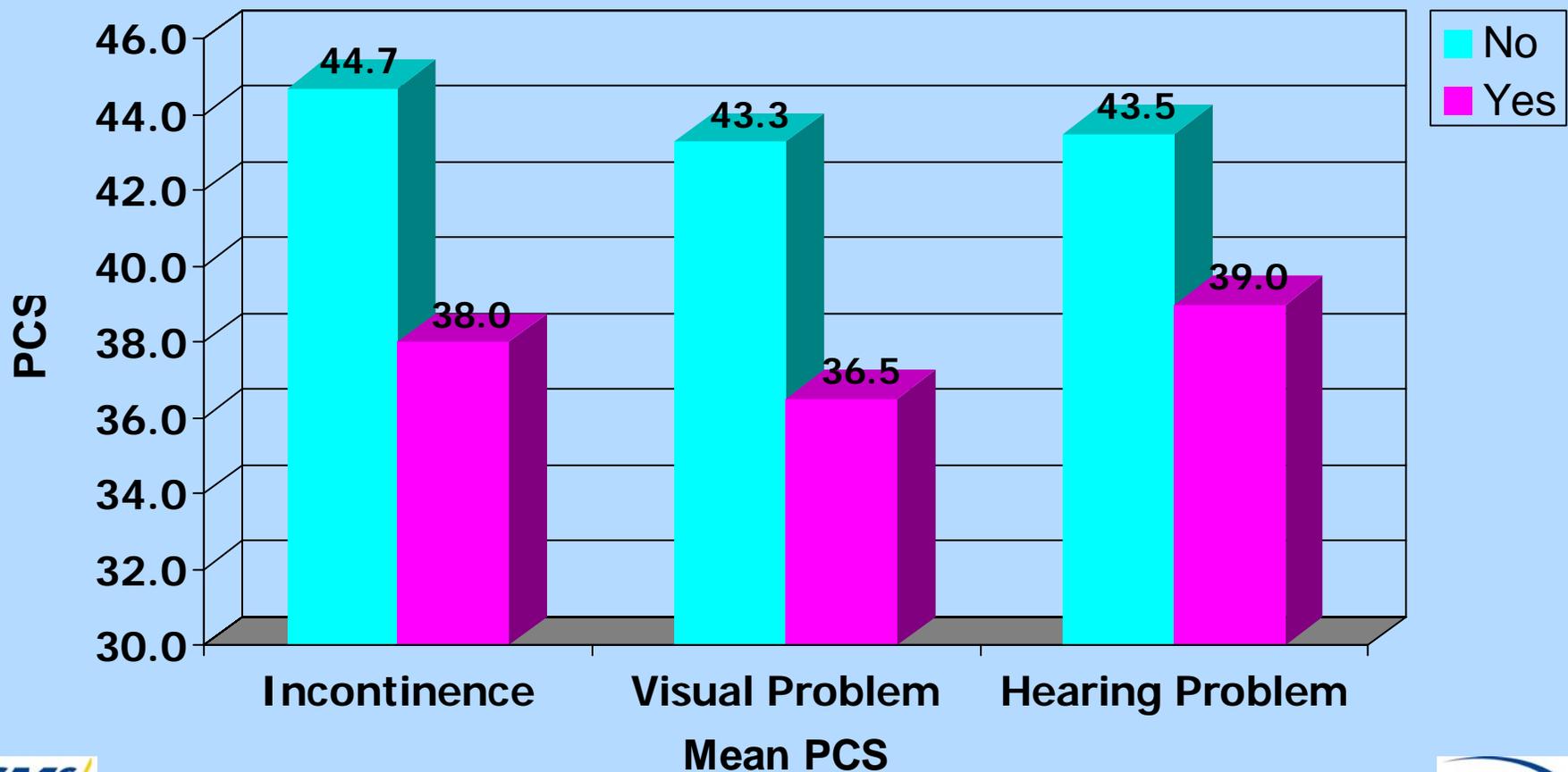
Assess Comorbidity

Chronic Conditions

	All	CAD %	CHF %
HTN	51	68	72
Diabetes	16	26	32
Stroke	8	17	21
Arthritis	48	56	60
COPD/Asthma	12	18	25
Visual Impairment	6	9	13
Hearing Impairment	13	16	19
≥ 3 Conditions	47	86	92

Bierman AS. Coexisting Illness and Heart Disease among Elderly Medicare Managed Care Enrollees. Health Care Financing Review Summer 2004; 25(4):105-117

Assess Comorbidity

Urinary Incontinence
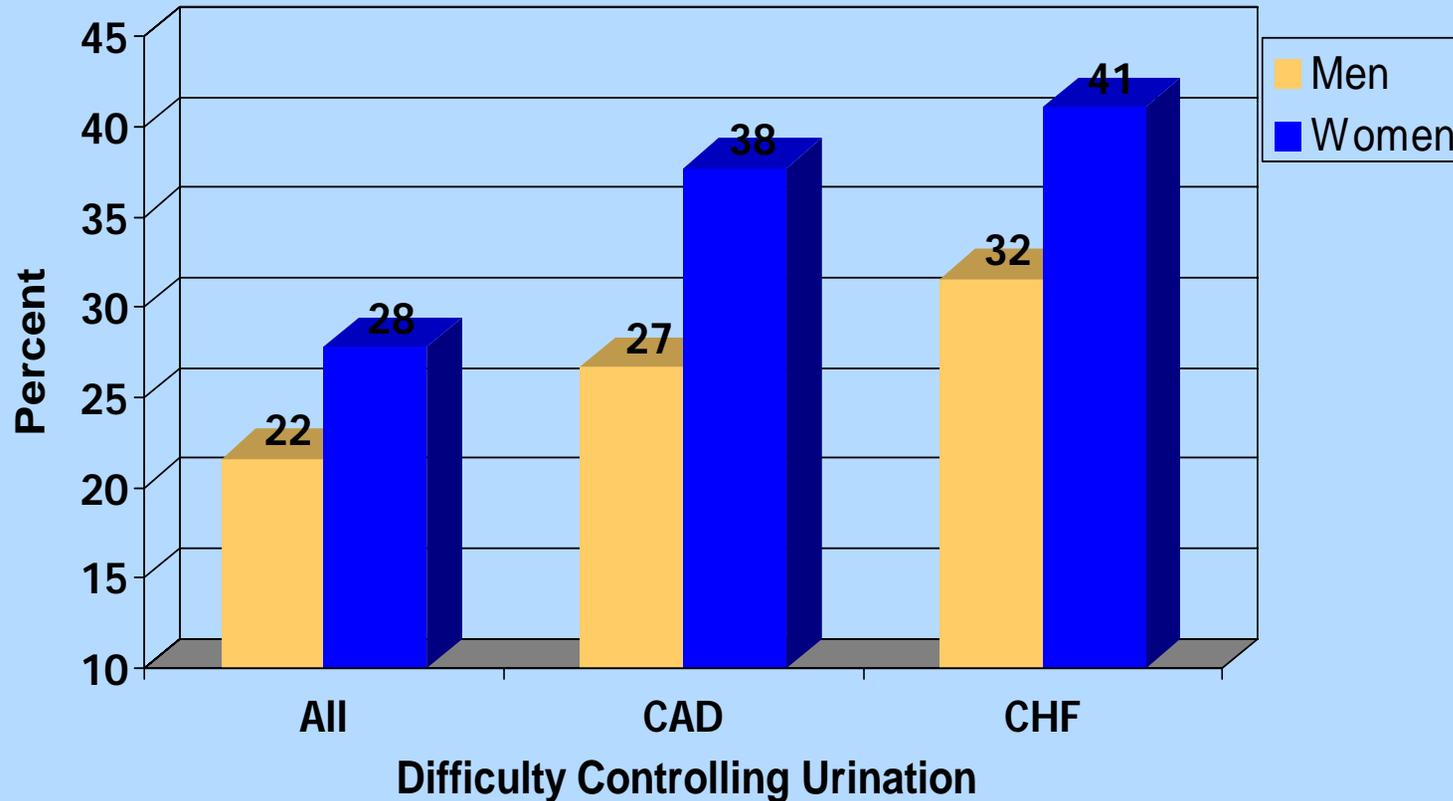
Bierman AS. Coexisting Illness and Heart Disease among Elderly Medicare Managed Care Enrollees. Health Care Financing Review Summer 2004; 25(4):105-117

Identify Opportunities For Improved Symptom Management

Shortness of Breath While Climbing One Flight of Stairs - CHF
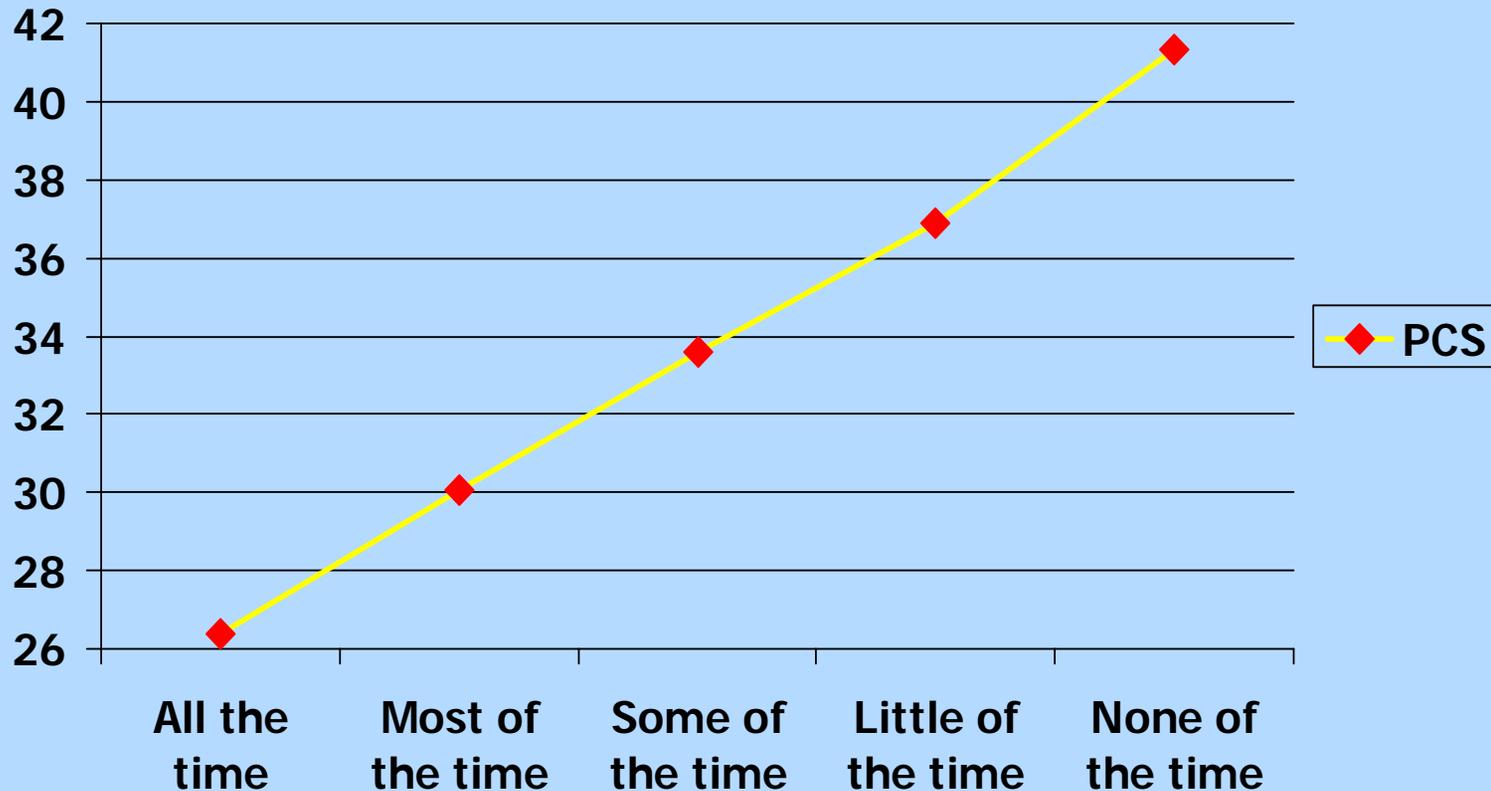
Identify Opportunities for Improved Symptom Management

Shortness of Breath While Climbing One Flight of Stairs - CHF
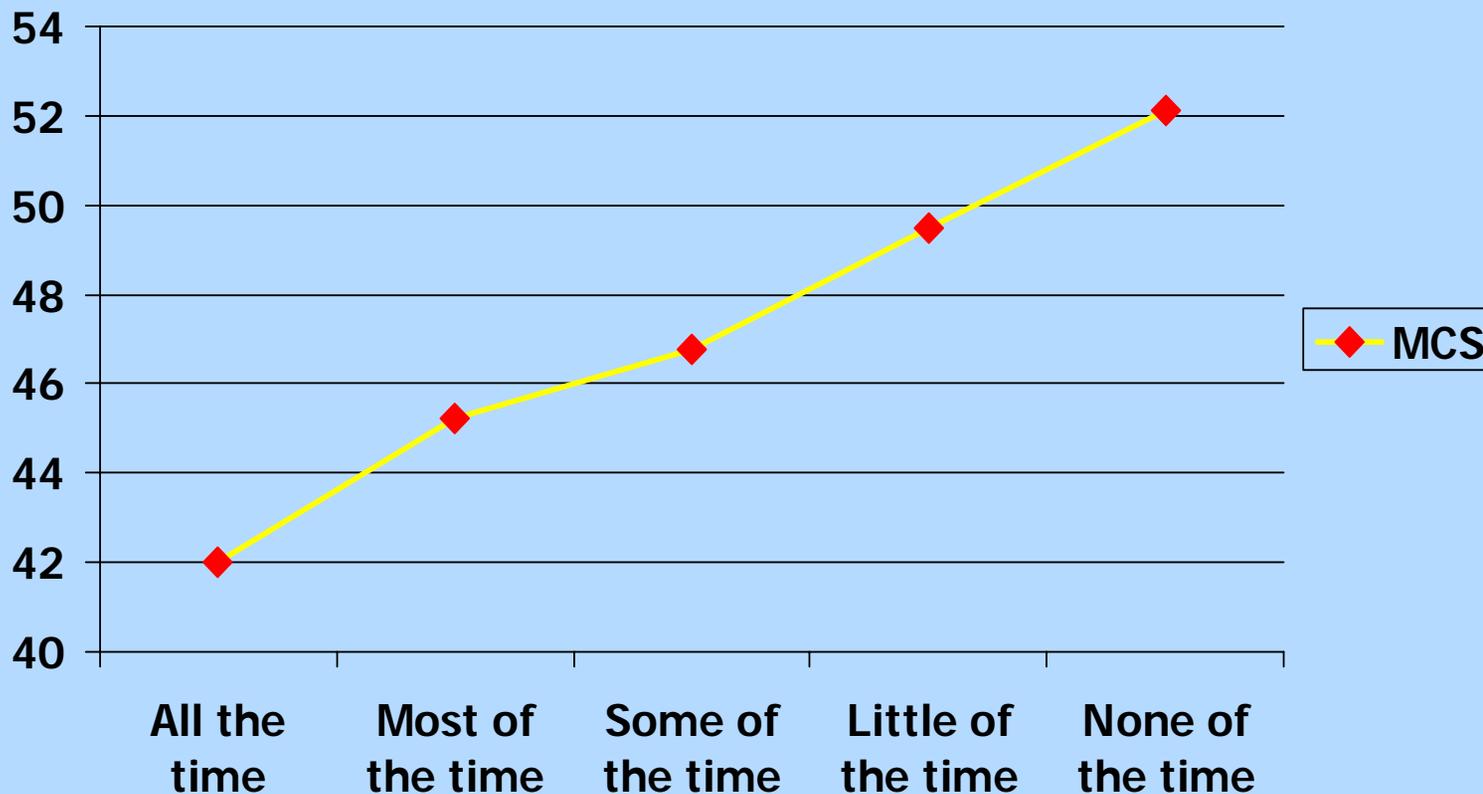
Identify Opportunities For Improved Symptom Management

PCS and Severity of Arthritis Pain
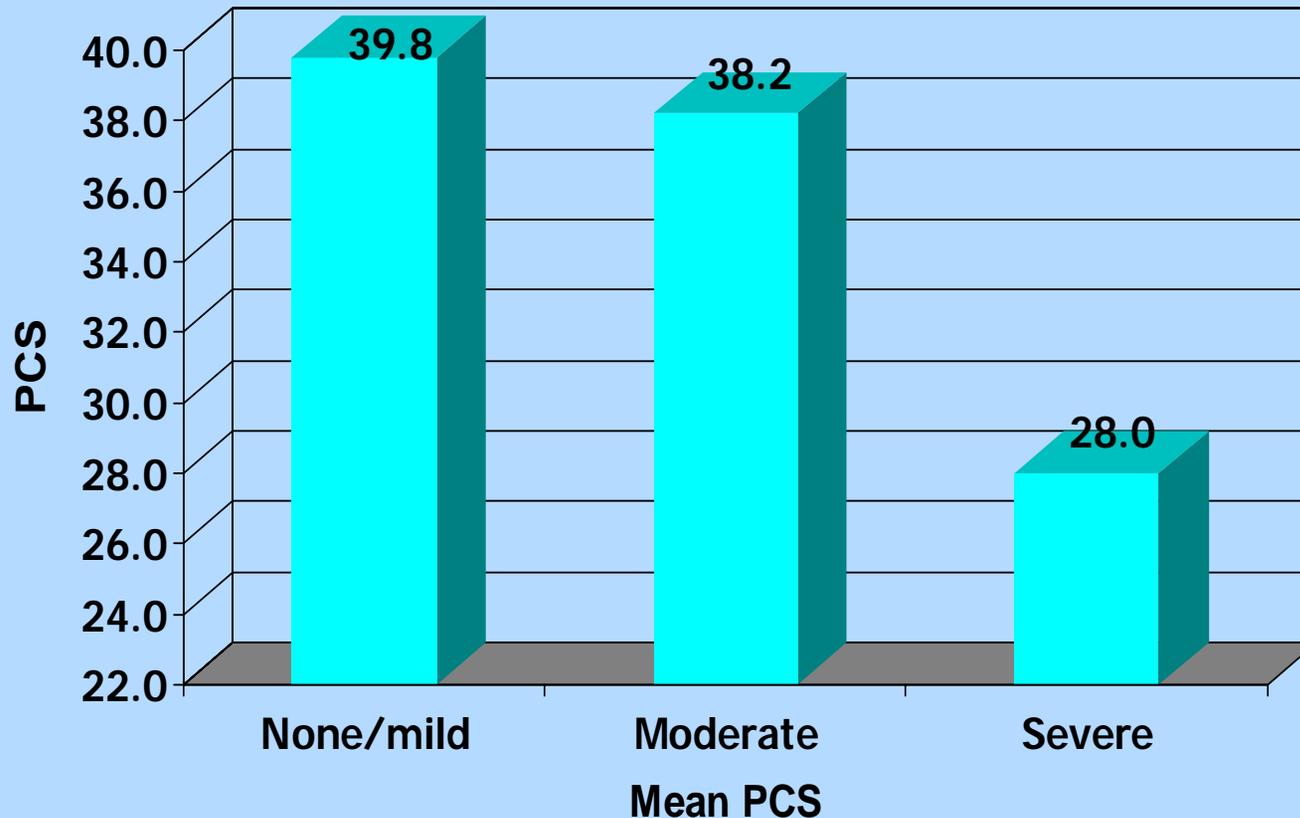
Identify At-risk Enrollees

Percent Reporting Fair or Poor Health By Income, Education, and Ethnicity
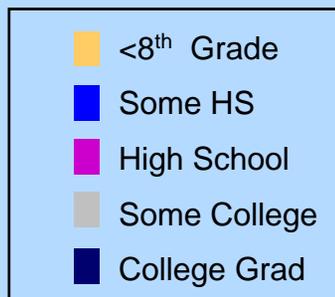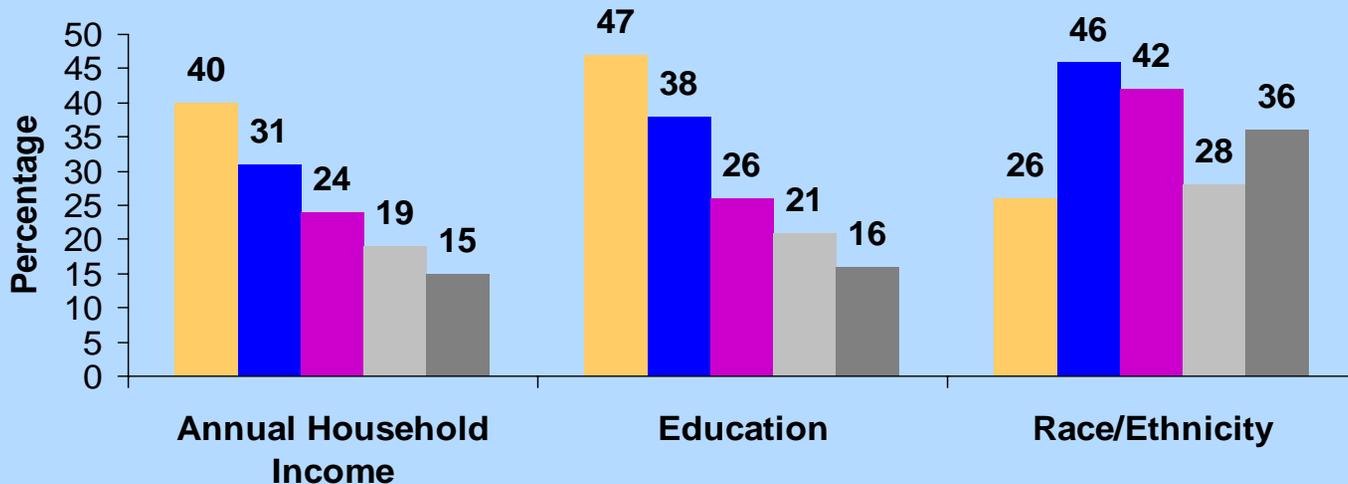
Bierman AS, Clancy CM. Health Disparities among Older Women: Identifying Opportunities to Improve Quality of Care and Functional Health Outcomes. JAMWA Fall 2001;56(4):155-160

Develop Intervention Strategies

- Identify symptoms, comorbid conditions, gender, socioeconomic, and ethnic differences that contribute to poorer health and functional status to design more effective interventions

- Modify clinical management of primary and comorbid conditions to improve functional health outcomes

Longitudinal Change in Physical and Mental Health

Examined predictors of 2-year declines in physical and mental health

- Decline defined as decrease in PCS/MCS over time
- Sample
  - 38,760 beneficiaries from
  - 188 Managed Care plans

Ellis, B.H., Shannon, E.D., Cox, J.K., Aiken, L., & Fowler, B.F. "Chronic Conditions: Results of the Medicare Health Outcomes Survey," 1998-2000," *Health Care Financing Review* 2004, 25(4), 75-91.

Longitudinal Change in Physical and Mental Health (cont'd)

- Analytic strategy
  - Predicted PCS/MCS change score from demographics and baseline score
  - Added chronic conditions, smokers, and positive depression screen (risk factors) to regression model to assess impact over and above baseline score and demographics
  - Added each risk factor to model individually and determined effect size by subtracting the R^2 of base model from the R^2 of demographics and risk factor model
  - Risk factors with effect size of 0.005 or above (0.5% of the variance) entered into the final model

Longitudinal Change in Physical and Mental Health (cont'd)

- Analytic strategy, cont'd
  - Created three groups of beneficiaries:
    - Newly diagnosed group (reported new condition at follow-up)
    - Chronic group (condition reported prior to baseline)
    - No disease group (reference group)

Longitudinal Change in Physical and Mental Health (cont'd)

- The following met the effect size criterion for decline in physical health:
  - Age
  - Arthritis of the hip/knee reported before baseline and newly reported at follow-up
  - Pulmonary conditions reported before baseline
  - Newly reported sciatica
  - The sum of other conditions reported before baseline and at follow-up
  - Baseline PCS score

Longitudinal Change in Physical and Mental Health (cont'd)

- The following met the effect size criterion for decline in mental health:
  - A positive response to a depression screening question (2 years or more in life feeling depressed/sad)
  - The sum of newly reported chronic conditions at follow-up
  - MCS score at baseline

Possible Research with HOS

- Link plan-specific HOS beneficiary level data to health plan claims, encounter, lab, and pharmacy data

- Examine cross-sectional or longitudinal relationship between health status and:
    - Total health care expenditures
    - Pharmacy use and expenditures
    - Health services utilization e.g. rates of inpatient admissions, office visits, ER visits
    - Use of preventive health services

Possible Research with HOS (cont'd)

- Define health status using:
  - Two summary measures of PCS, MCS
  - Selected subscale(s) e.g. bodily pain
  - Limitation in activities of daily living (ADLs)
  - Presence of selected chronic conditions

Possible Research with HOS (cont'd)

- Cross-sectional research questions include:
  - Do differences in the bodily pain subscale affect use and cost of pain-related medications?
  - Do differences in use of preventive health services affect health status?
  - Do differences in health status affect health utilization and health expenditures?
  - What are the characteristics that differentiate between high and low cost beneficiaries?

Possible Research Using HOS (cont'd)

- Longitudinal research questions include:
  - What baseline demographic and health characteristics best predict future high cost enrollees?
  - What baseline demographic and health characteristics best predict decline in health status?
  - What is the extent to which changes in health characteristics explain changes in health utilization and health expenditures?

Summary and Conclusions

- Medicare HOS instrument
  - Use for:
    - Pre- and post-test for interventions
    - Broader/different samples
- Medicare HOS data
  - Use for:
    - Health services research
    - Health status research
    - Health outcomes research
  - Available as PUF, LDS, or RIF
- Take advantage of this rich source of data

Medicare HOS Website

http://www.hosonline.org

Next Webinar
Mining Your HOS Data: A Toolkit

Don't forget to register for the

November 14, 2006 Webinar**!!**

Haven't registered yet? Download the registration form from the "What's New" page of the HOS Website at www.hosonline.org

For Further Information

- A recording of today's web conference will be posted at
    - https://ifmcevents.webex.com

- HOS Web Site
    - www.hosonline.org

- HOS Technical Support
    - Medicare HOS Information and Technical Support Telephone Line: 1-888-880-0077
    - E-mail address: hos@azqio.sdps.org