

# Healthy Life Expectancy for Medicare Managed Care Elderly

APHA 135<sup>th</sup> Annual Meeting  
November 7, 2007

Vijit Chinburapa, PhD, CPHQ

Beth Hartman Ellis, PhD

Mary Anne Hope, MS

Laura Giordano, RN, MBA, CPHQ



# Acknowledgements

- This research was funded by the Centers for Medicare & Medicaid Services
- The statements expressed are those of the authors and do not necessarily reflect the views of CMS

# Background

- Healthy life expectancy is a summary measure of population health (SMPH)
- Summary measures of population health integrate data on mortality and morbidity into a single number
- SMPH are useful for:
  - ◆ Tracking and monitoring population health over time
  - ◆ Quantifying health inequalities among population subgroups

# Research Objectives

- Examine and calculate healthy life expectancy or health-adjusted life expectancy (HALE) for the elderly Medicare managed care population
- Compare HALE among various population subgroups, namely, males, females, White, African American, White males, White females, African American males, and African American females

# Medicare Health Outcomes Survey (HOS)

- First Medicare managed care outcomes survey
- Launched in 1998
- 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

# Study Population

- The 2003 *Cohort 6* Baseline Medicare HOS included a random sample of 162,409 Medicare managed care beneficiaries from 163 managed care plans
- Beneficiaries who were institutionalized (1.2%), age less than 65 (6.7%), or invalid (3.4%) were excluded from the study
- 144,131 sample representing ~ 4.5 million elderly Medicare managed care met the study criteria
- 101,735 respondents (70.6% response rate) were included in the analysis

# Healthy Days Questions

- Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
- Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

# Calculation of Health Weights

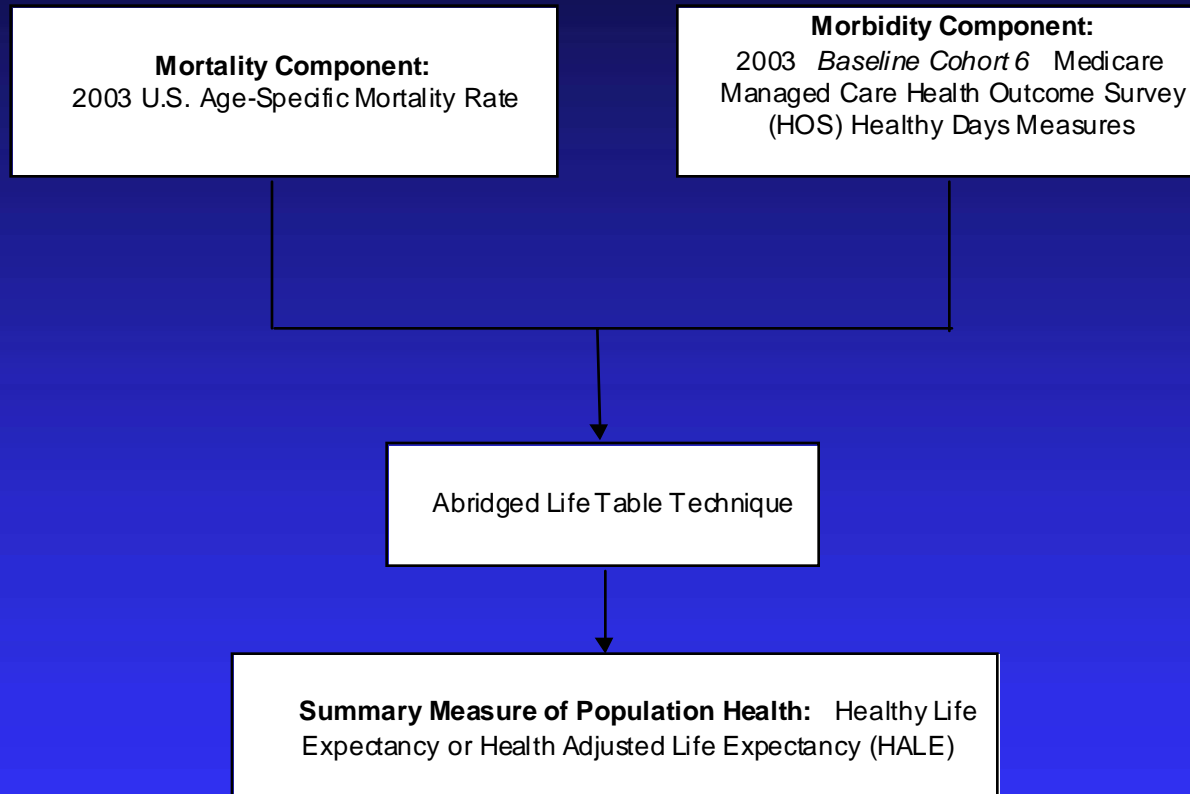
- A summary index of healthy days was calculated by combining number of physically and mentally healthy days (with a maximum of 30 days)
- Proportion of healthy days in the past 30 days served as a health weight
- Survey weights, a product of sampling and response weights, were used to account for sampling design and unit nonresponse
- Multiple imputation method was used to impute missing data to account for item nonresponse



# Calculation of HALE

- 2003 U.S. age-specific mortality data were obtained from National Center for Health Statistics
- An abridged life-table method was used to calculate health-adjusted life expectancy
- The life table method assumes a closed and static population
- Started with a hypothetical cohort of 100,000 persons
- Assumed the 2003 age-specific mortality rate was observed throughout the life span of the hypothetical cohort

# Healthy Life Expectancy Model



Source: Adapted from Molla, M.T., Wagener, D.K., & Madans, J.H. Summary Measures of Population Health: Methods for Calculating Healthy Life Expectancy. *Healthy People Statistical Notes*, No. 21 Hyattsville, Maryland: National Center for Health Statistics. August 2001.

**Table 1: Sample Characteristics and Mean Proportion of Days with Healthy Physical and Mental Health**

Characteristics	% Sample	Mean Proportion of Healthy Days	SE*
Age 65-69	22.5%	0.769	0.006
Age 70-74	27.8%	0.773	0.005
Age 75-79	23.0%	0.731	0.006
Age 80-84	15.7%	0.711	0.007
Age 85-89	7.9%	0.687	0.010
Age 90+	3.0%	0.637	0.017
Female	58.8%	0.723	0.004
Male	41.2%	0.762	0.004
White	85.3%	0.745	0.003
African American	8.3%	0.707	0.010
Hispanic	2.1%	0.681	0.020
Others/Unknown	4.3%	0.778	0.014

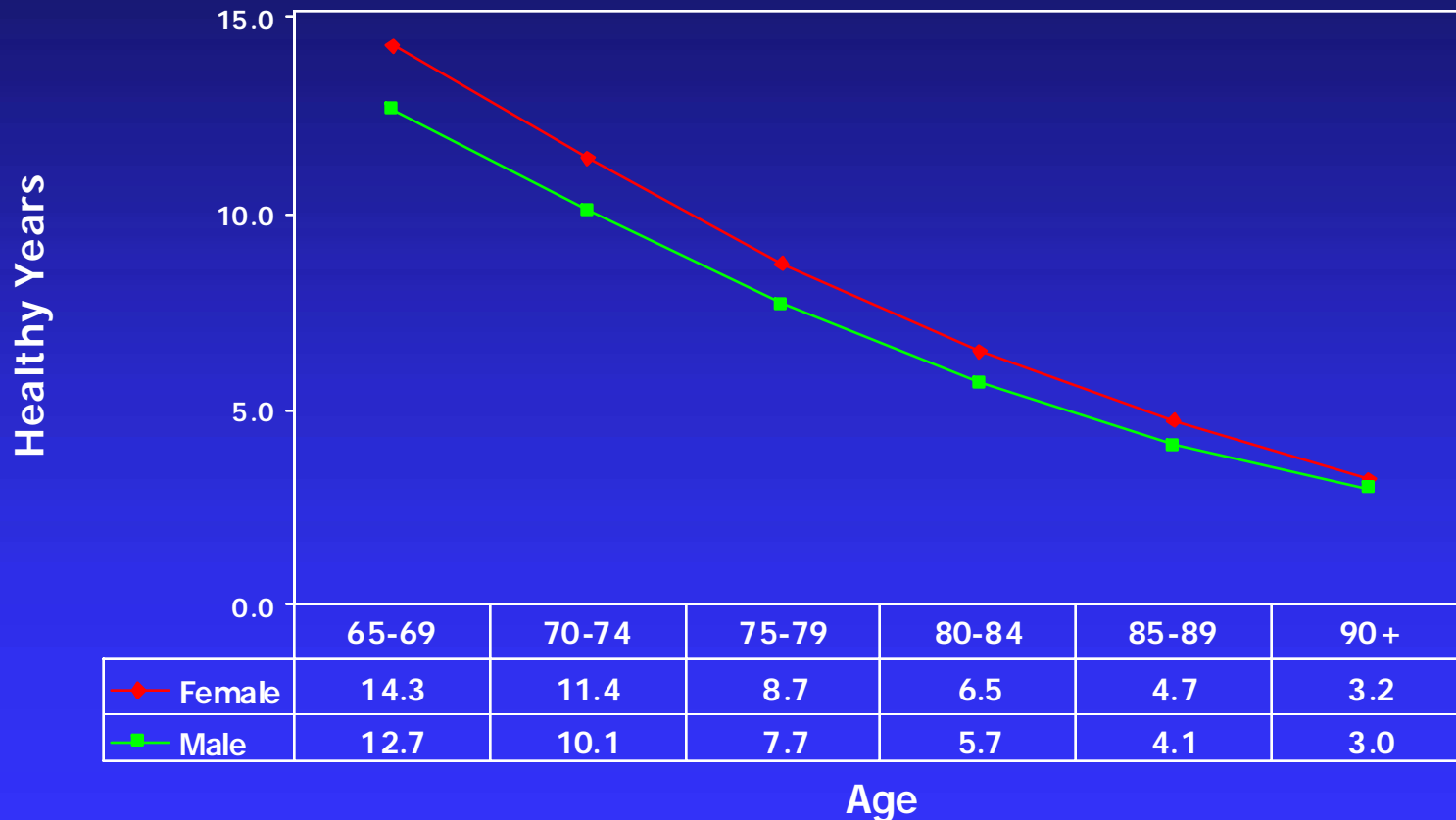
\* Standard Error

## Table 1 (Cont'd)

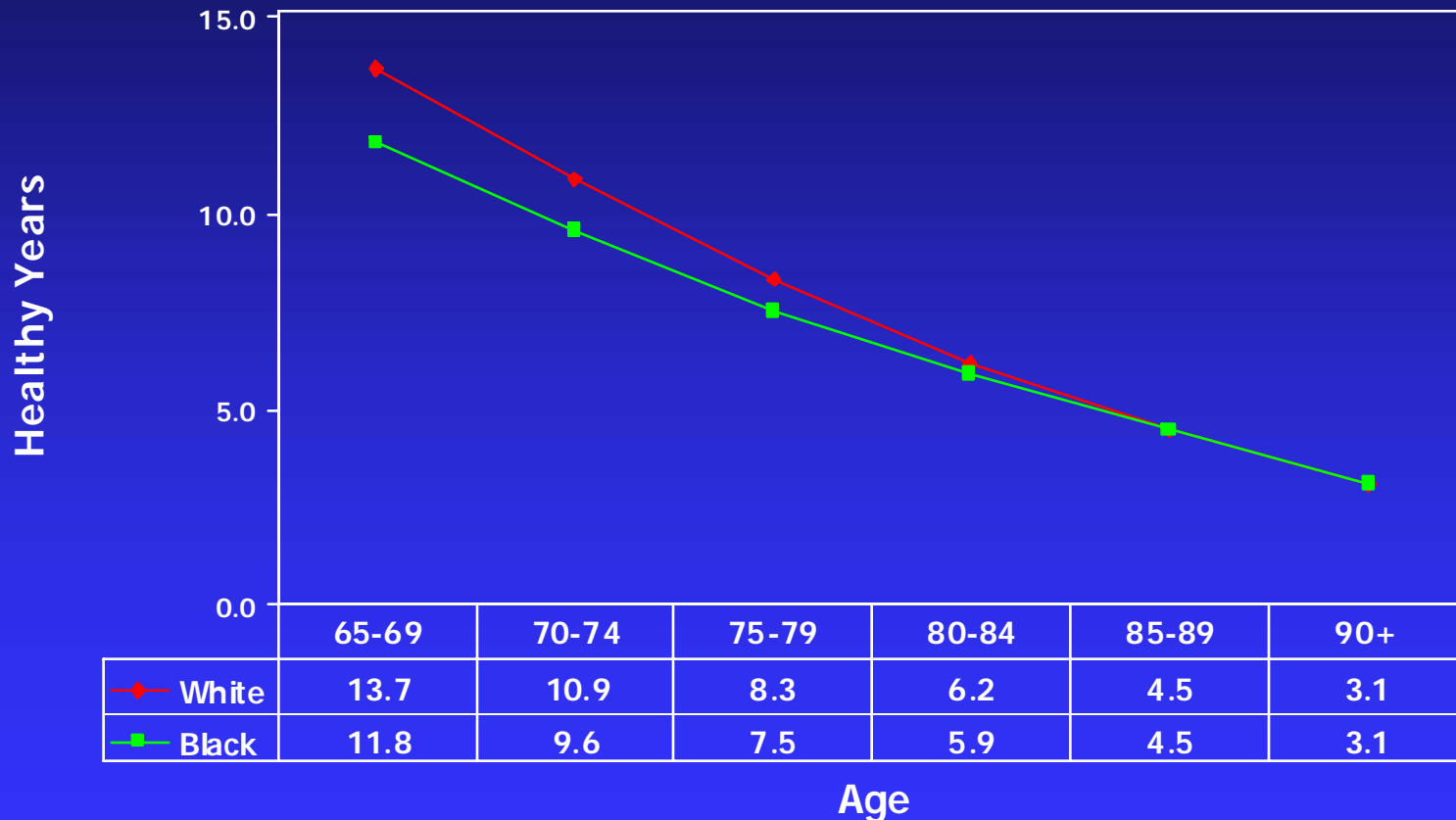
Characteristics	% Sample	Mean Proportion of Healthy Days	SE*
8 <sup>th</sup> Grade or Less	11.6%	0.659	0.008
Some High School	17.0%	0.711	0.007
High School	34.6%	0.748	0.004
Some College	21.7%	0.756	0.007
College	7.4%	0.800	0.009
>4 Year College	7.7%	0.808	0.010
Income <\$20,000	38.9%	0.693	0.005
\$20,000 - \$29,999	24.5%	0.742	0.006
\$30,000 - \$39,999	16.2%	0.766	0.007
\$40,000 - \$49,999	9.2%	0.804	0.008
\$50,000 - \$79,999	7.5%	0.817	0.009
\$80,000 - \$99,999	1.9%	0.858	0.016
>=\$100,000	1.8%	0.829	0.023

\* Standard Error

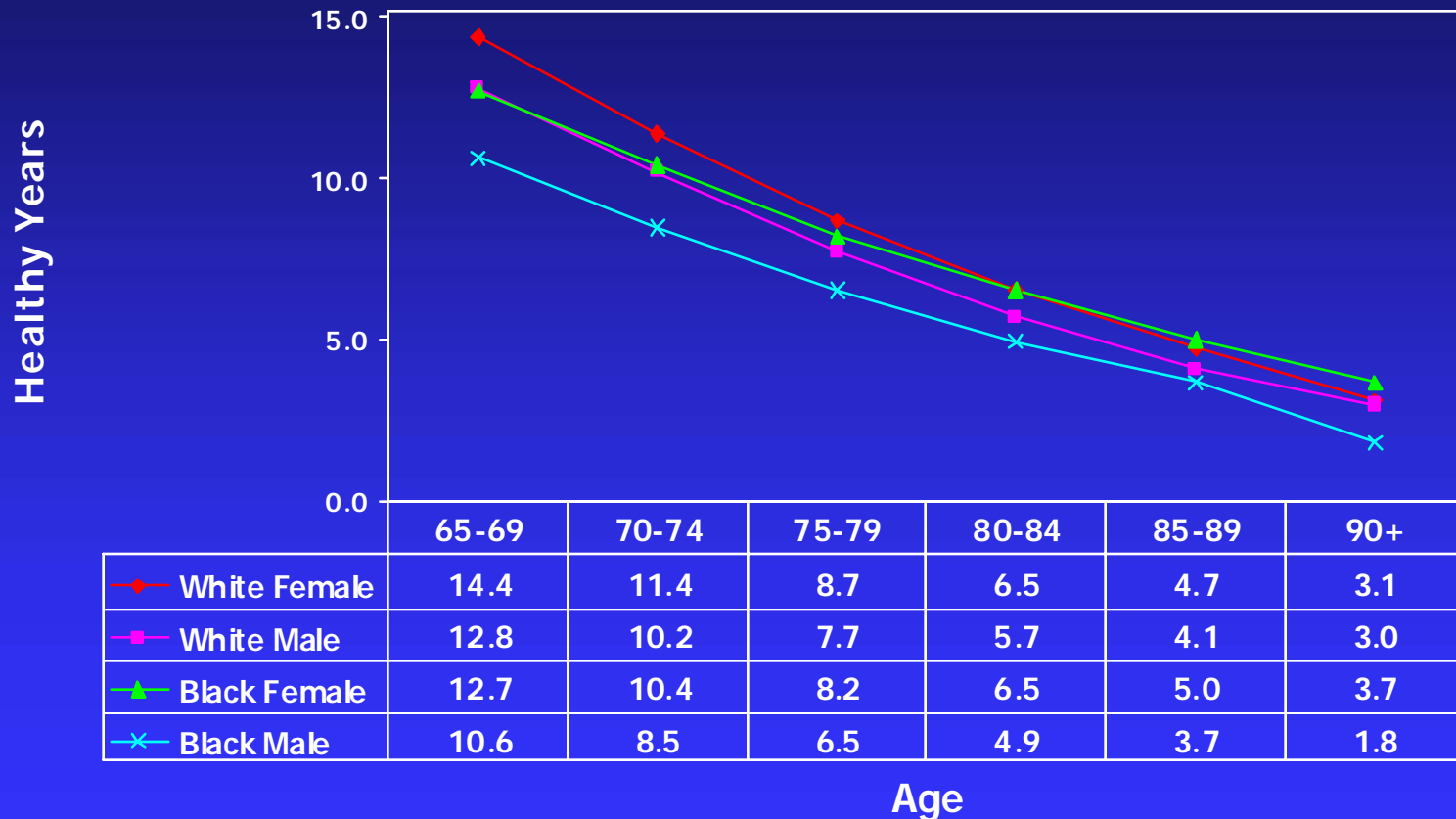
# Figure 1: Healthy Life Expectancy by Age and Gender 2003 Cohort 6 Baseline Medicare HOS



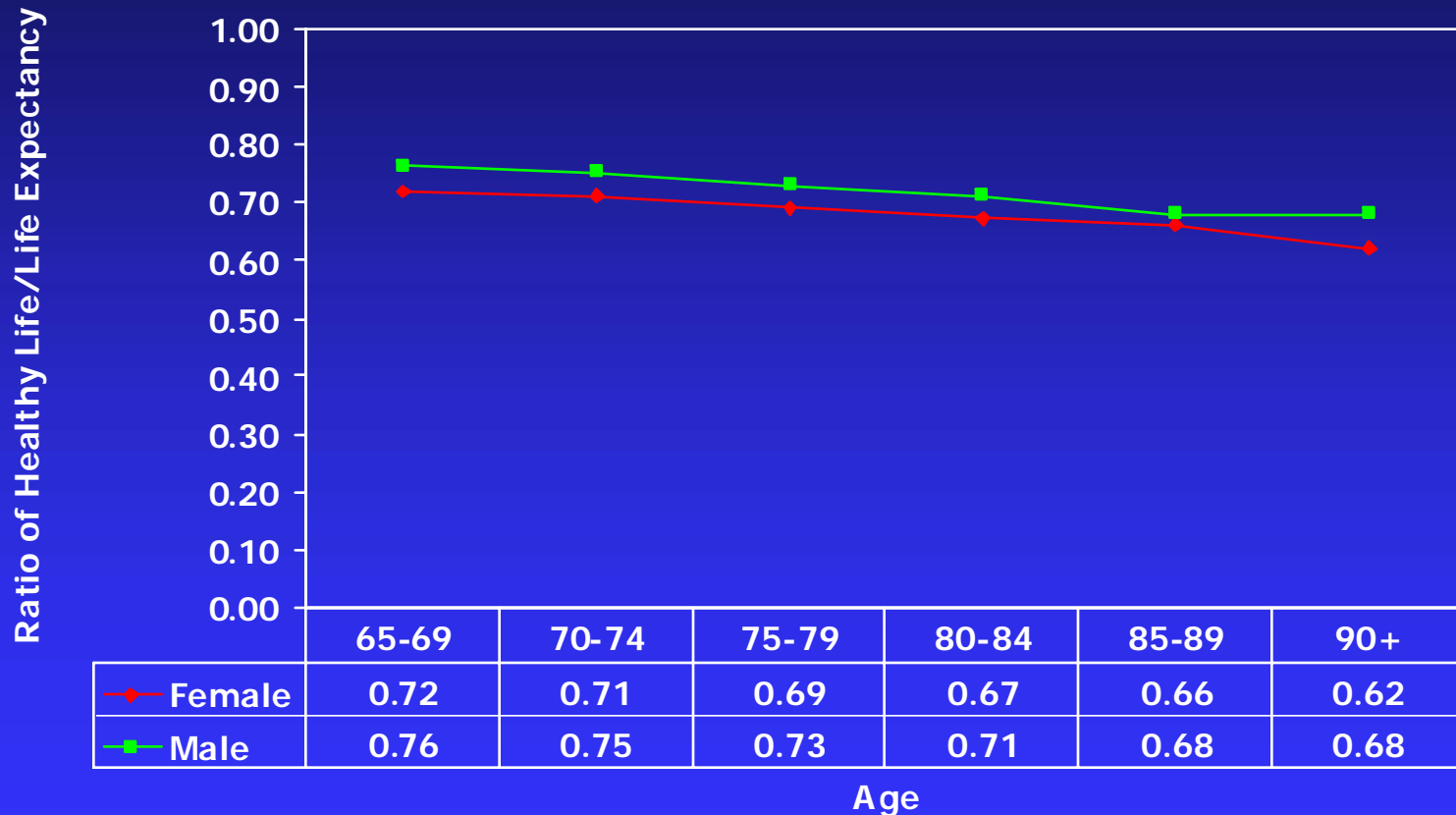
## Figure 2: Healthy Life Expectancy by Age and Race 2003 Cohort 6 Baseline Medicare HOS



## Figure 3: Healthy Life Expectancy by Age, Race, and Gender 2003 Cohort 6 Baseline Medicare HOS

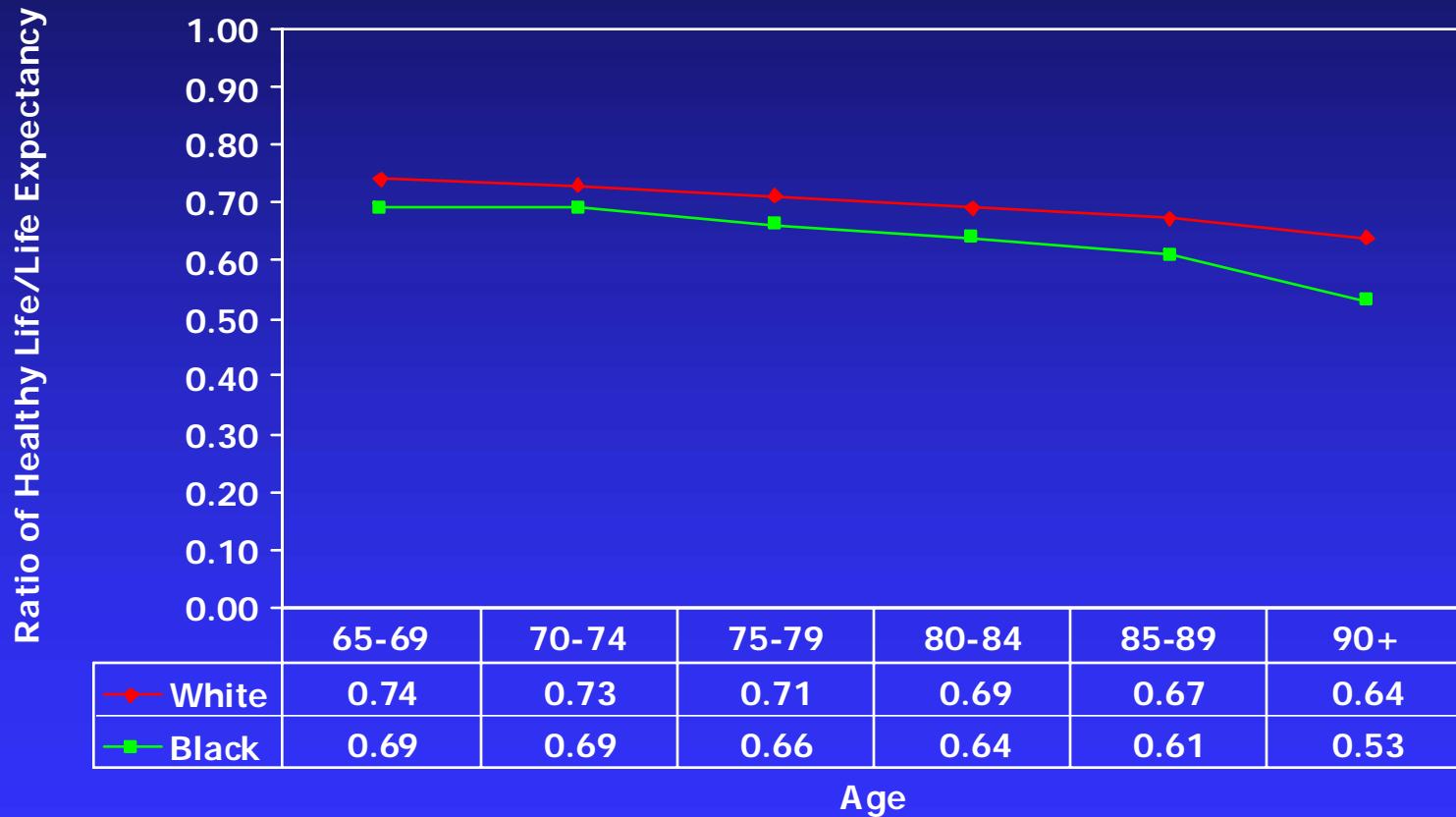


# Figure 4: Ratio of Healthy Life Expectancy to Life Expectancy by Age and Gender 2003 Cohort 6 Baseline Medicare HOS



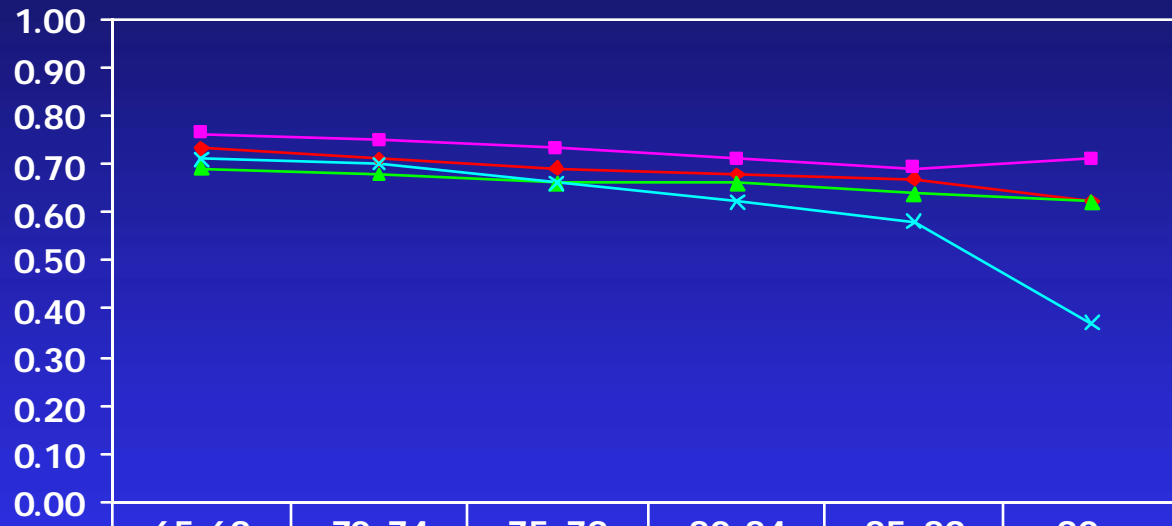


# Figure 5: Ratio of Healthy Life Expectancy to Life Expectancy by Age and Race 2003 Cohort 6 Baseline Medicare HOS



# Figure 6: Ratio of Healthy Life Expectancy to Life Expectancy by Age, Race, and Gender 2003 Cohort 6 Baseline Medicare HOS

Ratio of Healthy Life/Life Expectancy



	65-69	70-74	75-79	80-84	85-89	90+
White Female	0.73	0.71	0.69	0.68	0.67	0.62
White Male	0.76	0.75	0.73	0.71	0.69	0.71
Black Female	0.69	0.68	0.66	0.66	0.64	0.62
Black Male	0.71	0.70	0.66	0.62	0.58	0.37

Age

# Summary of Findings

- Mean proportion of days spent in physically and mentally healthy states varied by age, gender, race, and other socioeconomic characteristics
- Females had a higher life expectancy and a higher healthy life expectancy than males
- Males spent a higher proportion of time in a healthy state than females
- Whites had a higher life expectancy and a higher healthy life expectancy than African Americans
- The differences in healthy life expectancy between males and females, and Whites and African Americans were larger at younger age than at older age

# Policy Implications

- Healthy life expectancy integrates mortality and morbidity data and serves as a useful measure for tracking and monitoring health and illness burden of elderly Medicare managed care population over time
- Future research should continue to examine reasons for differences in healthy life expectancy among population subgroups
- Differences in healthy life expectancy may be partially attributable to underlying differences in socioeconomic status, health literacy, or other covariates

# Caveats

- ◆ The study assumed the U.S. age-specific mortality rate was applicable to the elderly Medicare managed care population
- ◆ Exclusion of institutionalized Medicare managed care beneficiaries from the calculation of health weights may lead to an overestimation of healthy life expectancy

# Contact Information

Laura Giordano, RN, MBA, CPHQ

- [lgiordano@azqio.sdps.org](mailto:lgiordano@azqio.sdps.org)
- 602.665.6158

HOS Web Site

- [www.hosonline.org](http://www.hosonline.org)

HOS Technical Support

- Medicare HOS Information and Technical Support  
Telephone Line: 1-888-880-0077
- E-Mail: [hos@azqio.sdps.org](mailto:hos@azqio.sdps.org)