

# CHRONIC CONDITIONS

## AMONG MEDICARE BENEFICIARIES



CENTER FOR   
**STRATEGIC PLANNING**

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### Suggested citation

Centers for Medicare & Medicaid Services. Chronic Conditions among Medicare Beneficiaries, Chart Book. Baltimore, MD. 2011.

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### Acknowledgements

This report was prepared by the Centers for Medicare & Medicaid Services. The content of this chart book was developed by Kimberly A. Lochner, under the direction of Christine S. Cox, with data and technical assistance provided by Stephanie Bartee, Gloria Wheatcroft, James Krometis and Christopher Powers.



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## INTRODUCTION

**C**hronic Conditions among Medicare Beneficiaries is a chart book prepared by the Centers for Medicare & Medicaid Services (CMS) and created to provide an overview of chronic conditions among Medicare beneficiaries. The chart book highlights the prevalence of chronic conditions among Medicare beneficiaries and the impact of chronic conditions on Medicare service utilization and spending. The prevalence and costs of chronic health conditions among Medicare beneficiaries have far-reaching implications for the Medicare system. Not only are conditions such as hypertension, high cholesterol, heart disease and diabetes highly prevalent among Medicare beneficiaries, but most beneficiaries have two or more chronic conditions. Multiple chronic conditions increase the risks for poor outcomes such as mortality and functional limitations as well as the risk of high cost services such as hospitalizations and emergency room visits. CMS is committed to providing its beneficiaries with access to high-quality, coordinated care in order to maintain health and functioning, while at the same time controlling health care costs. In order to meet this challenge, understanding chronic conditions among the Medicare population is extremely important.

The information available from this report is intended to provide health policymakers and the public health research community a better understanding of the burden of chronic conditions among the Medicare fee for service (FFS)

population and provide preliminary insights into the targeting of prevention and management strategies that will improve care and reduce costs for those with chronic conditions.

We selected 15 common chronic conditions that are available in the CMS Chronic Condition Warehouse (CCW) research files that also correspond with the list of chronic conditions used to define multiple chronic conditions by the Department of Health and Human Services Strategic Framework on Multiple Chronic Conditions.<sup>1</sup> Chronic conditions were examined for nearly 31 million Medicare beneficiaries, who were continuously enrolled in the Medicare fee for service program in 2008. A complete description of the selection of chronic conditions and inclusion criteria for the study population can be found in the Methodology and Data Source section.

This chart book builds upon the RWJF chart book, *Chronic Care: Making the Case for Ongoing Care*<sup>2</sup>, which was not focused on the Medicare population, but did examine the impact of chronic conditions on individuals, their caregivers and the health care system. The chart book also has benefitted from collaboration with the U.S. Department of Health and Human Services (HHS) Strategic Framework on Multiple Chronic Conditions. The information in this chart book is available for use and reproduction without charge; permission from the authors to use the charts is not necessary.

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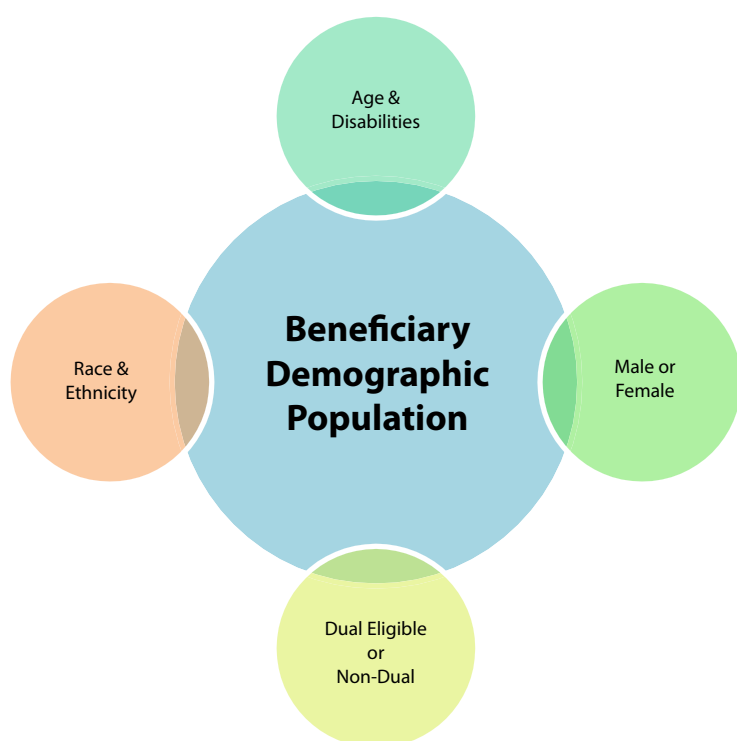
<sup>1</sup> U.S. Department of Health and Human Services. Optimum Health and Quality of Life for Individuals with Multiple Chronic Conditions. December 2010. Multiple Chronic Conditions – A Strategic Framework: Washington, DC. Available at [http://www.hhs.gov/ash/initiatives/mcc/mcc\\_framework.pdf](http://www.hhs.gov/ash/initiatives/mcc/mcc_framework.pdf), accessed September 28, 2011.

<sup>2</sup> Anderson G. Chronic Care: Making the Case for Ongoing Care. Princeton, NJ: Robert Wood Johnson Foundation, 2010. Available at <http://www.rwjf.org/files/research/50968chronic.care.chartbook.pdf>, accessed September 28, 2011.

## SECTION 1: DEMOGRAPHICS AND PREVALENCE

The HHS Strategic Framework defines multiple chronic conditions (MCC) as having two or more conditions. In 2008, for our study population, two-thirds, or 20.7 million beneficiaries, had at least two or more chronic conditions. As the number of Medicare beneficiaries with chronic conditions is expected to increase, it is important to identify not only the prevalence and severity of specific conditions, but also identify the co-morbidity among these conditions. In fact, a complex picture of chronic conditions emerges when specific combinations of chronic conditions are considered as some chronic conditions are highly co-morbid while others tend to

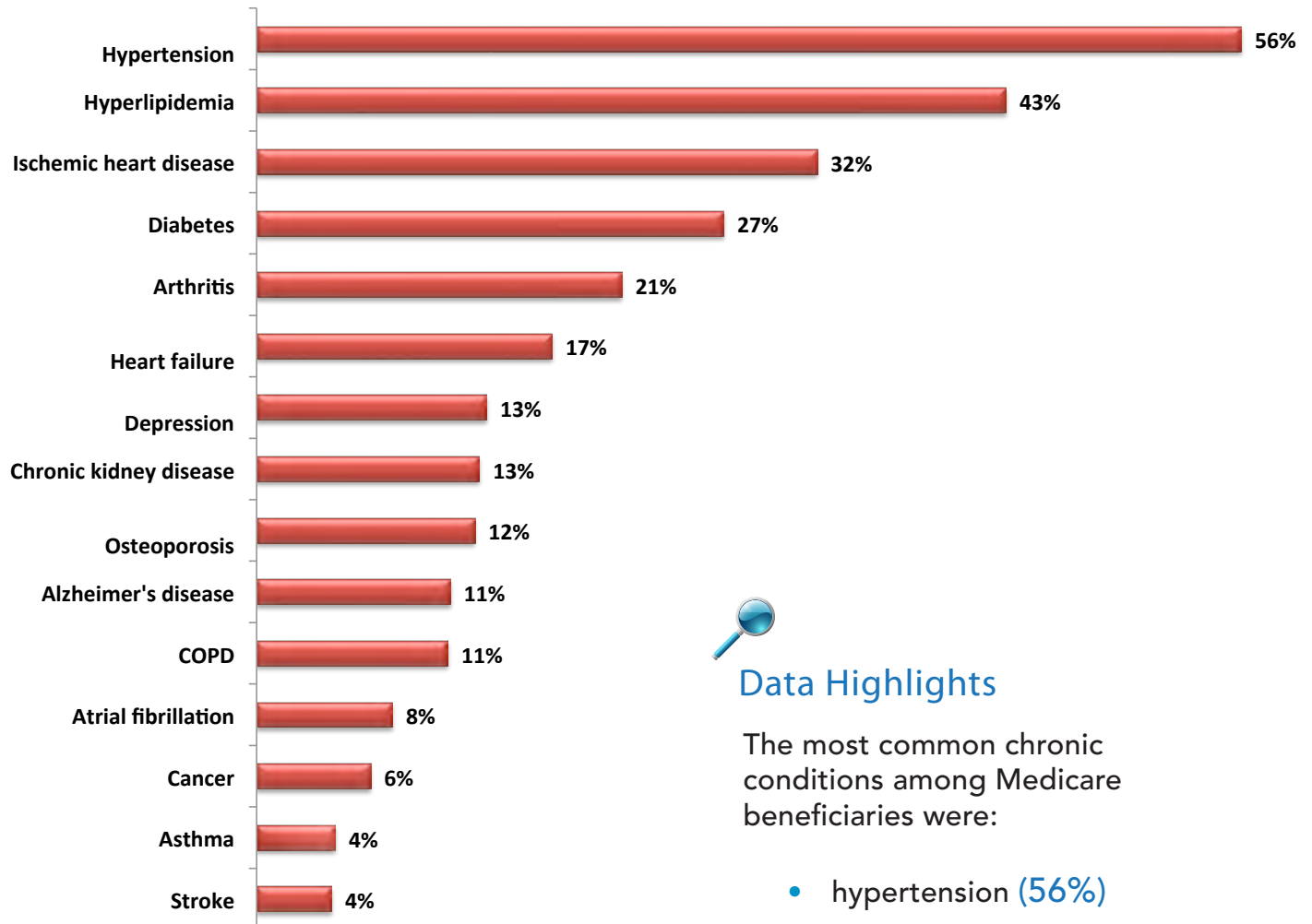
have lower rates of co-morbidity. Given the high prevalence of co-morbidity, focusing on MCC is essential towards furthering our understanding of the scope of the problem, identifying research gaps and targeting interventions. In addition, we must also understand the variation in chronic conditions and MCC across demographic groups. For example, as women live longer than men the prevalence of specific and multiple chronic conditions will be higher for them. Similarly, chronic conditions tend to be more prevalent among beneficiaries eligible for Medicare and Medicaid benefits, known as the dual eligible beneficiaries. Dual eligible beneficiaries are a vulnerable population, with most living below poverty and comprised of both beneficiaries who are disabled (approximately 40% are under age 65 and eligible for Medicare due to a disability) or 85 years of age and older (14%).



*“Hypertension was the most common chronic condition and this was true across age groups, for men and women as well as dual-eligibles”*

## Percentage of Medicare FFS Beneficiaries with the 15 Selected Chronic Conditions: 2008

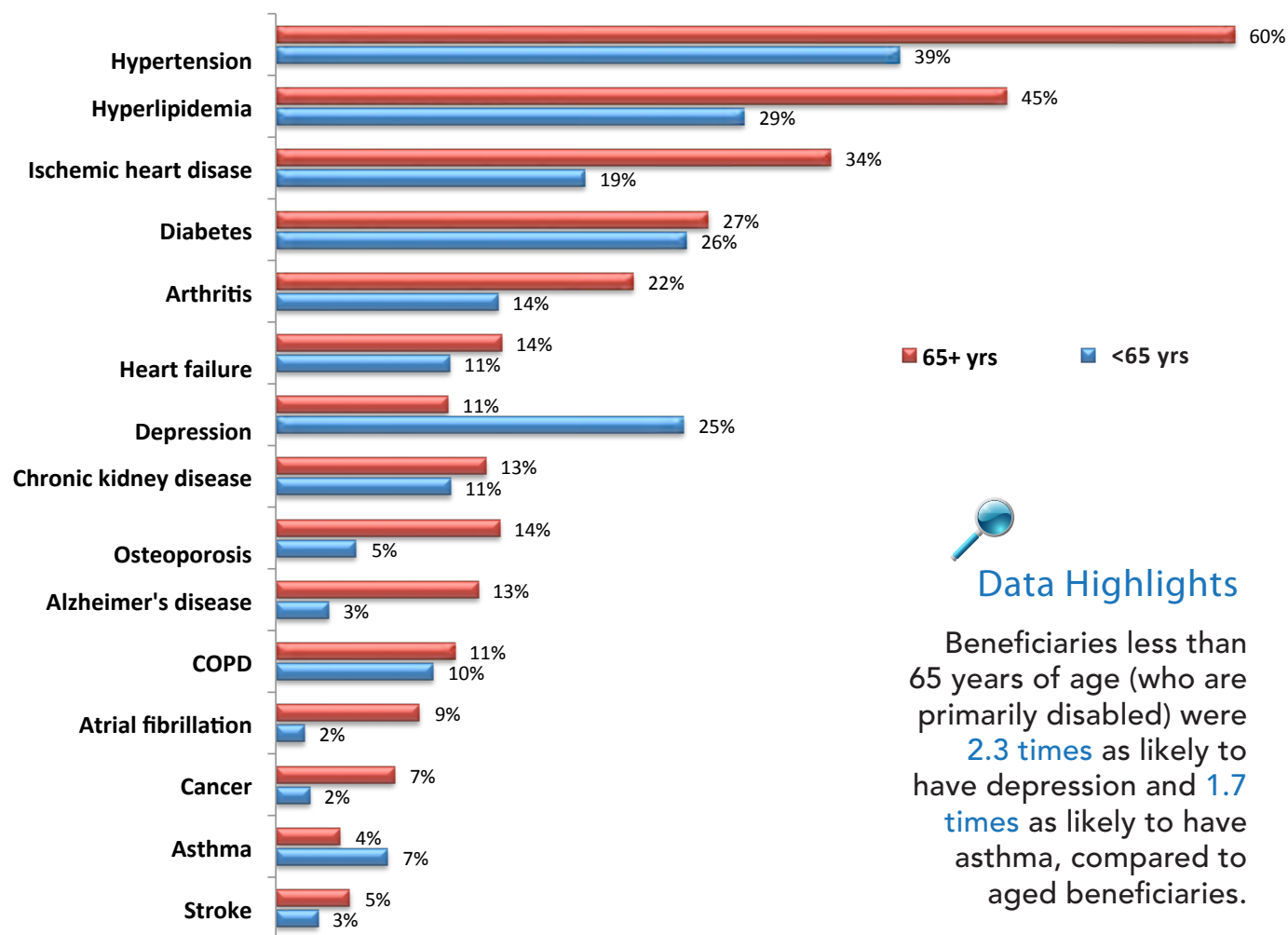
Figure 1.1a





## Percentage of Medicare FFS Beneficiaries with 15 the Selected Chronic Conditions by Age: 2008

Figure 1.1b




### Data Highlights

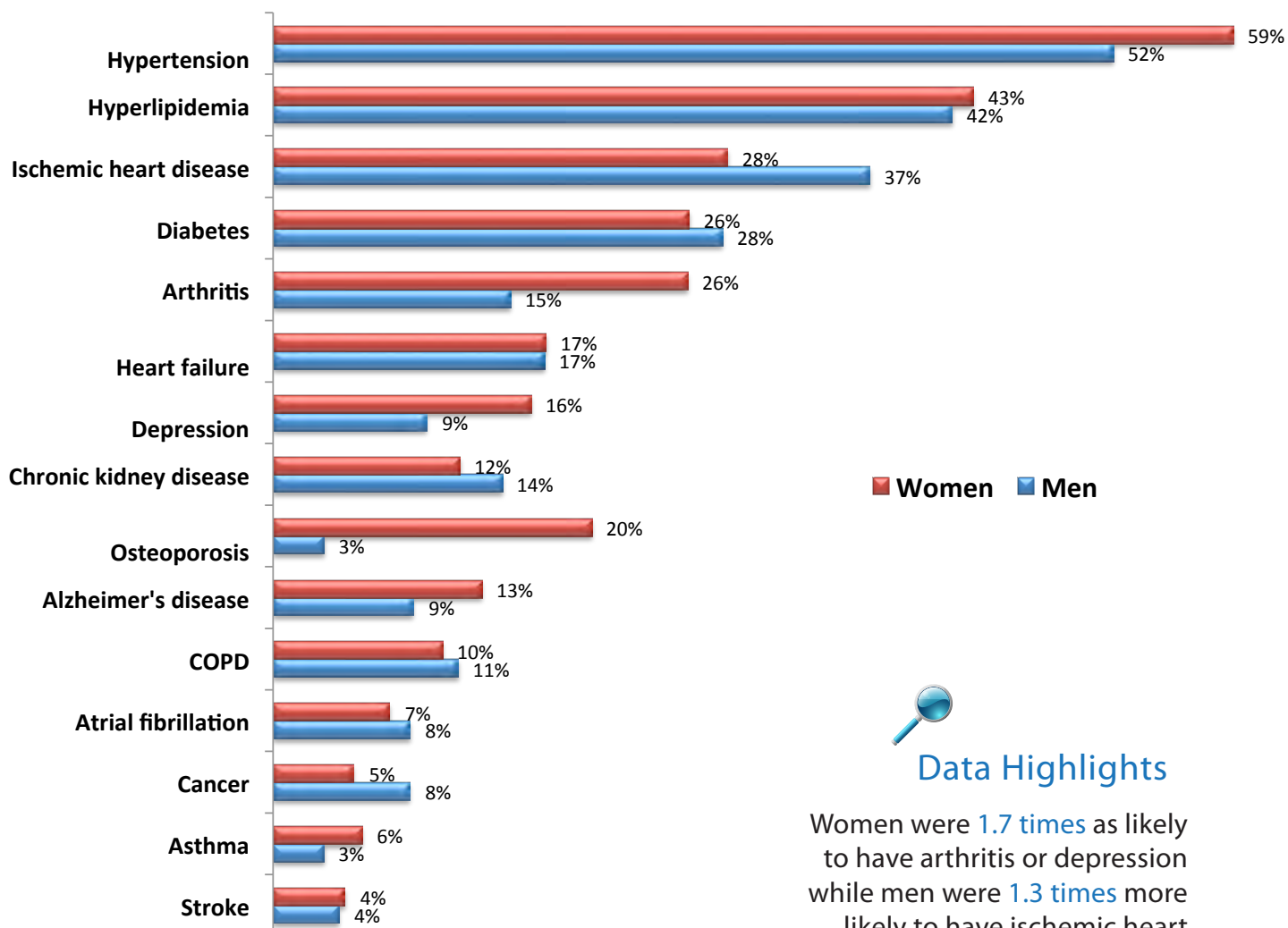
Beneficiaries less than 65 years of age (who are primarily disabled) were **2.3 times** as likely to have depression and **1.7 times** as likely to have asthma, compared to aged beneficiaries.

*“Chronic conditions were more prevalent among aged beneficiaries but depression was more common for disabled beneficiaries”*



## Percentage of Medicare FFS Beneficiaries with the 15 Selected Chronic Conditions by Sex: 2008

Figure 1.1c



## Data Highlights

Women were **1.7 times** as likely to have arthritis or depression while men were **1.3 times** more likely to have ischemic heart disease.

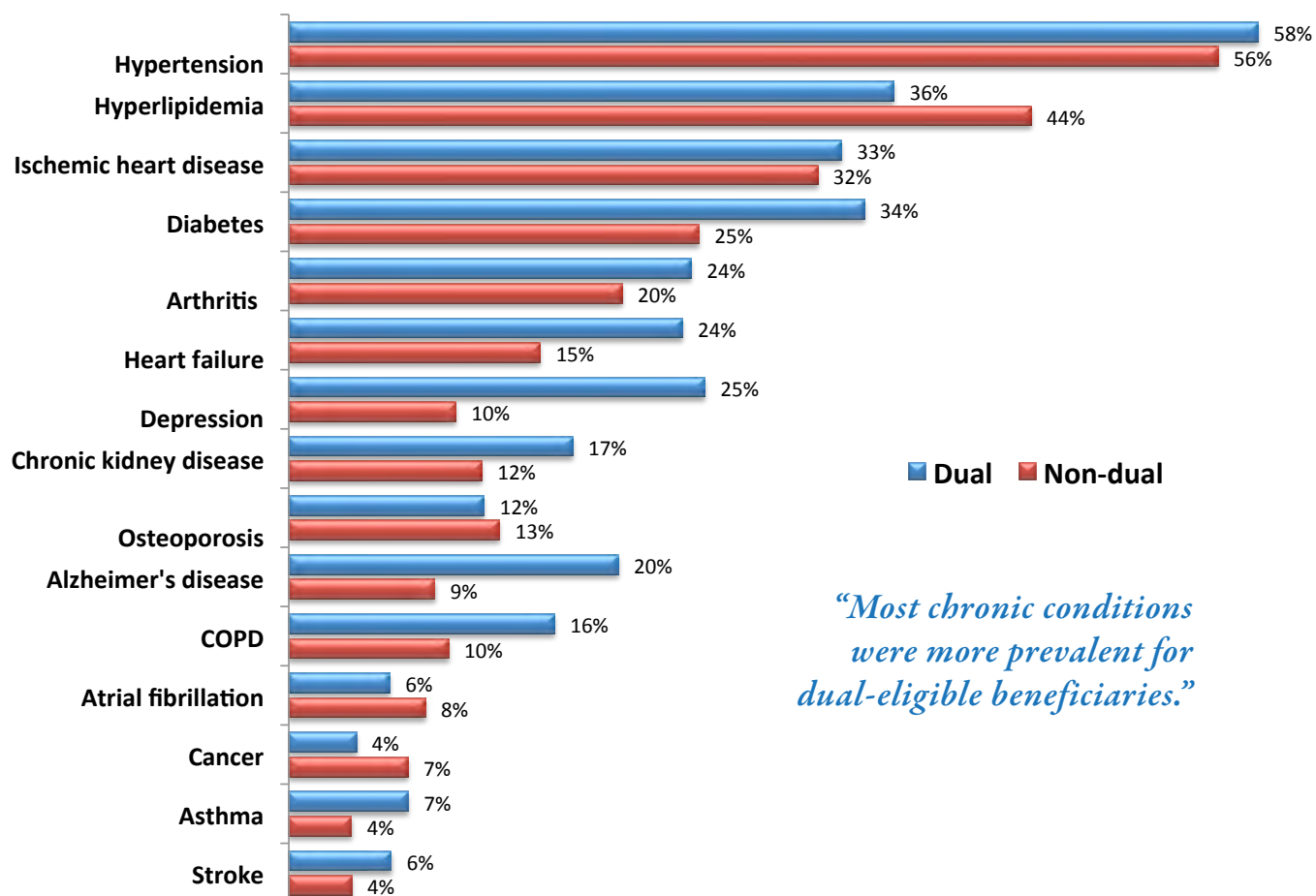
*“Chronic conditions varied by sex”*





## Percentage of Medicare FFS Beneficiaries with the 15 Selected Chronic Conditions by Dual Eligibility Status: 2008

Figure 1.1d

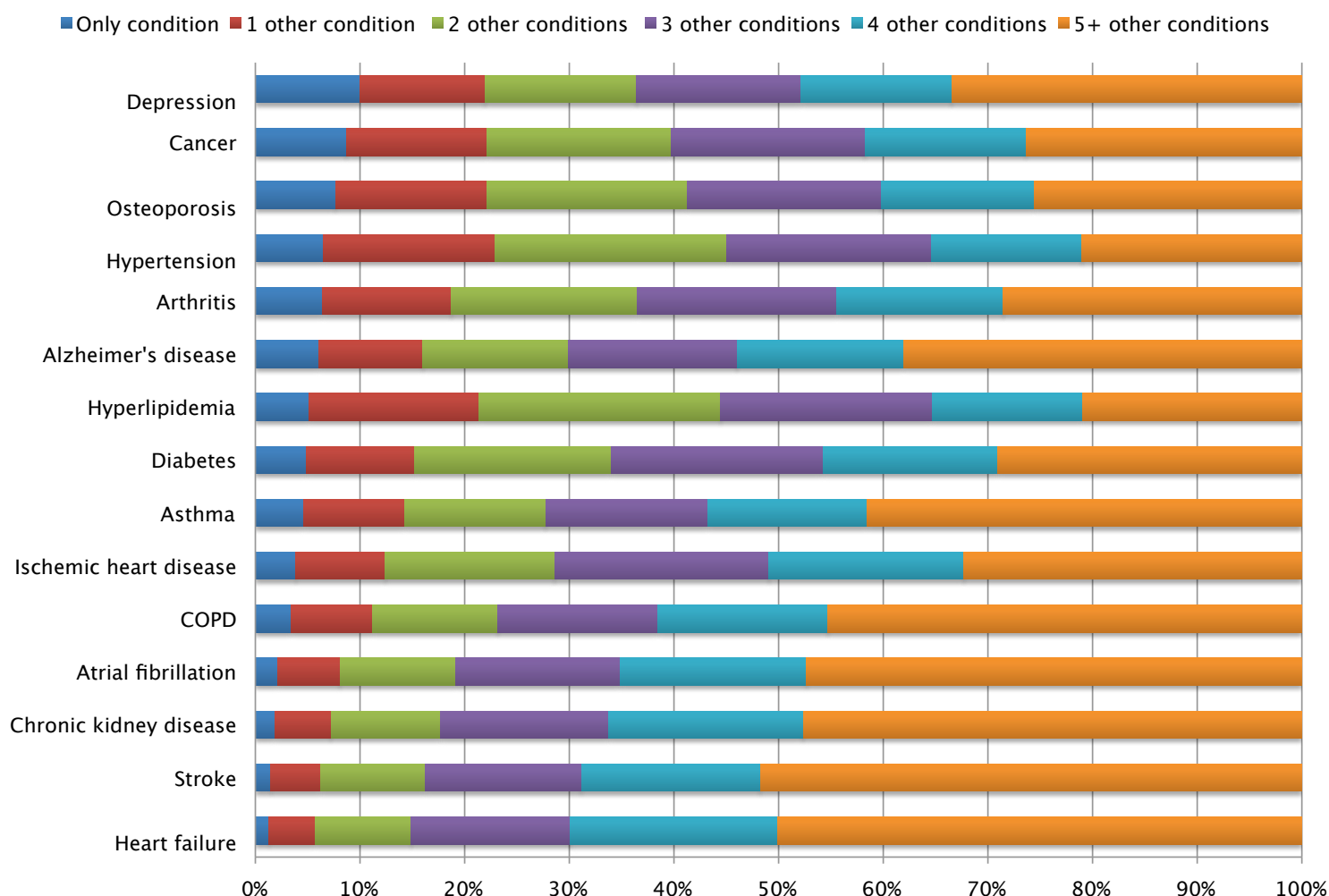


### Data Highlights

- Dual eligible beneficiaries were more than **twice** as likely to have depression or Alzheimer's disease.
- Almost one-quarter of dual eligibles had heart failure, which was **60% higher** than those beneficiaries not receiving Medicaid benefits.

## Co-morbidity Among Chronic Conditions for Medicare FFS Beneficiaries with the Condition: 2008

Figure 1.2



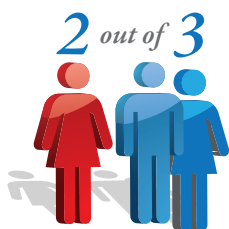
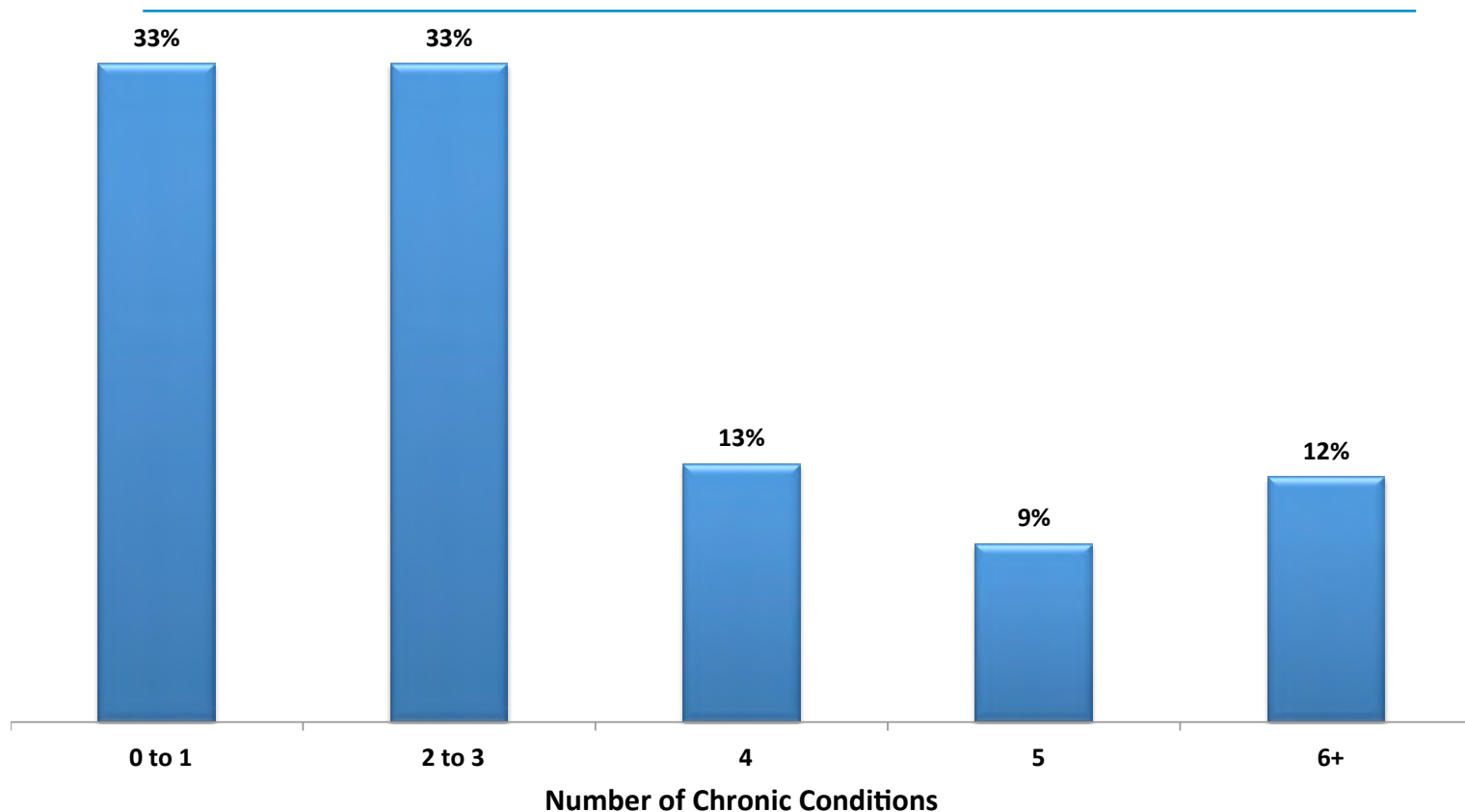
### Data Highlights

*“Co-morbidity among chronic conditions is very common.”*

- Seven percent of beneficiaries with hypertension had no other condition present, while 21% had 5 or more additional conditions.
- Stroke and heart failure were highly co-morbid conditions with about 50% of beneficiaries with these conditions having 5 or more additional chronic health conditions.
- This pattern of co-morbidity held for men and women, with beneficiaries 65 years and older and dual-eligibles having greater co-morbidity.

## Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions: 2008

Figure 1.3a



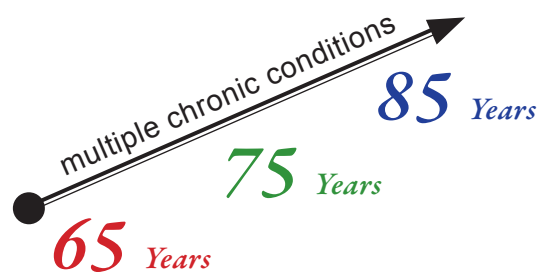
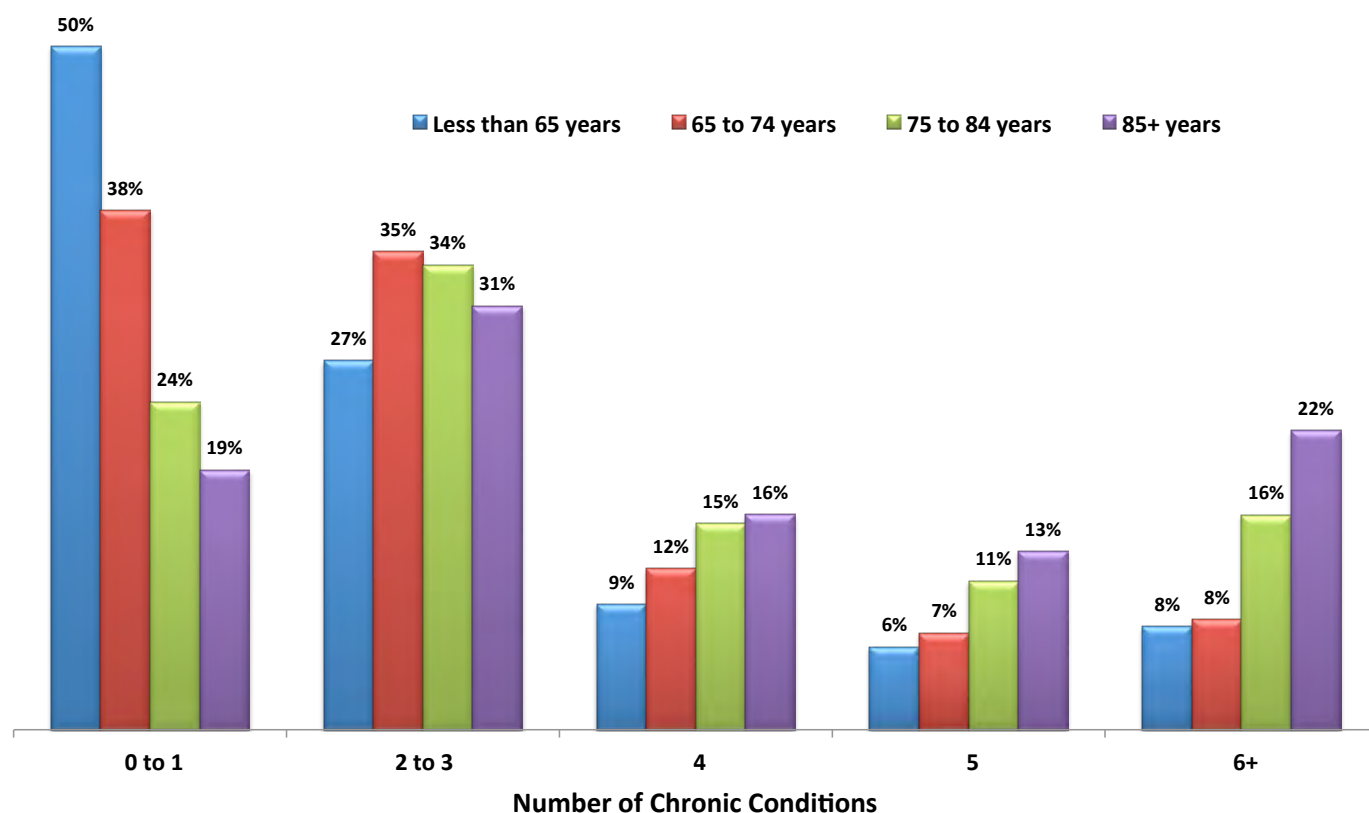
*“Two- thirds of Medicare beneficiaries had multiple chronic conditions”*



### Data Highlights

Among the 15 chronic conditions examined, the prevalence of MCC was high, with **two-thirds** of beneficiaries having two or more chronic conditions and **12%** having 6 or more chronic conditions.

## Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions and Age: 2008



*"Multiple chronic conditions increased with age"*

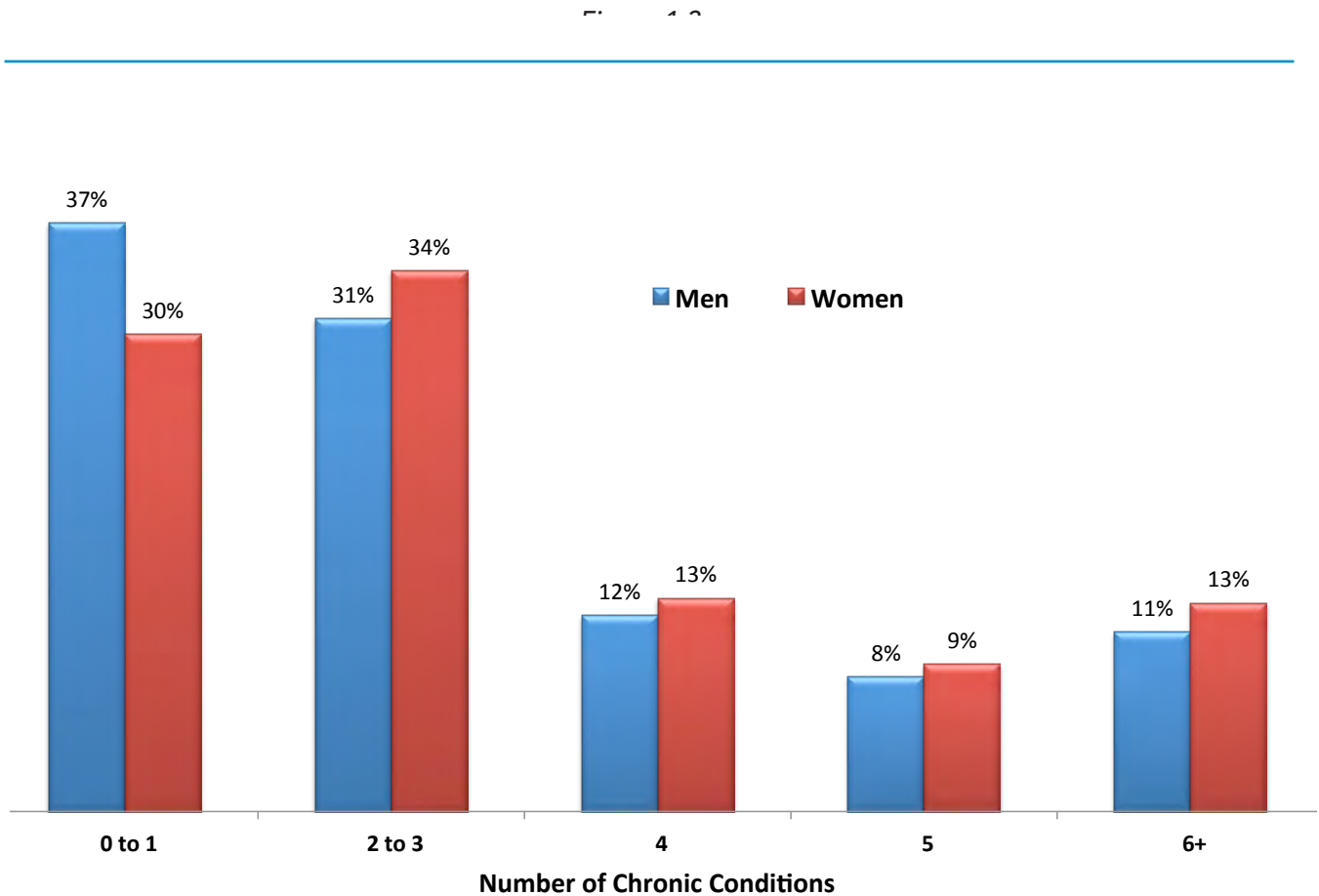


### Data Highlights

One-half of beneficiaries less than 65 years of age had two or more chronic conditions compared to:

- Sixty-two percent of those 65-74 years;
- Seventy-six percent of those 75-84 years; and
- Eighty-one percent of beneficiaries 85 years and older.

## Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions and Sex: 2008

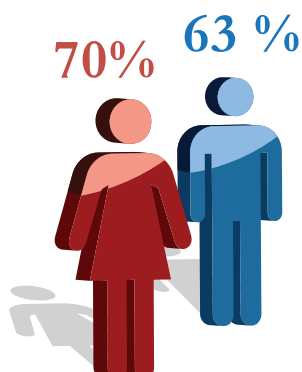


*“Women were more likely than men to have multiple chronic conditions”*



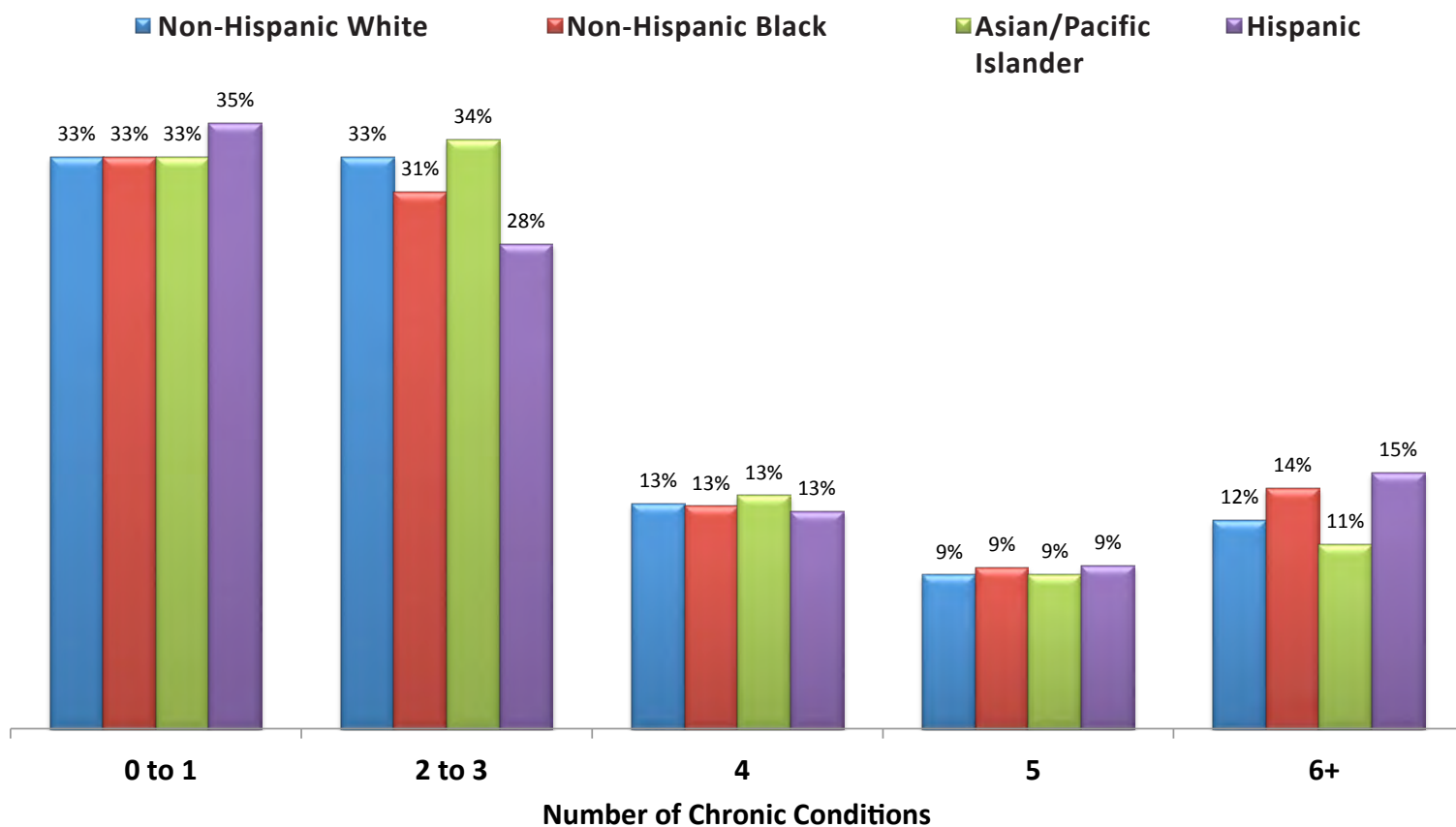
### Data Highlights

Seventy percent of women had two or more chronic conditions compared to 63% of men.



### Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions and Race/Ethnicity: 2008

Figure 1.3d

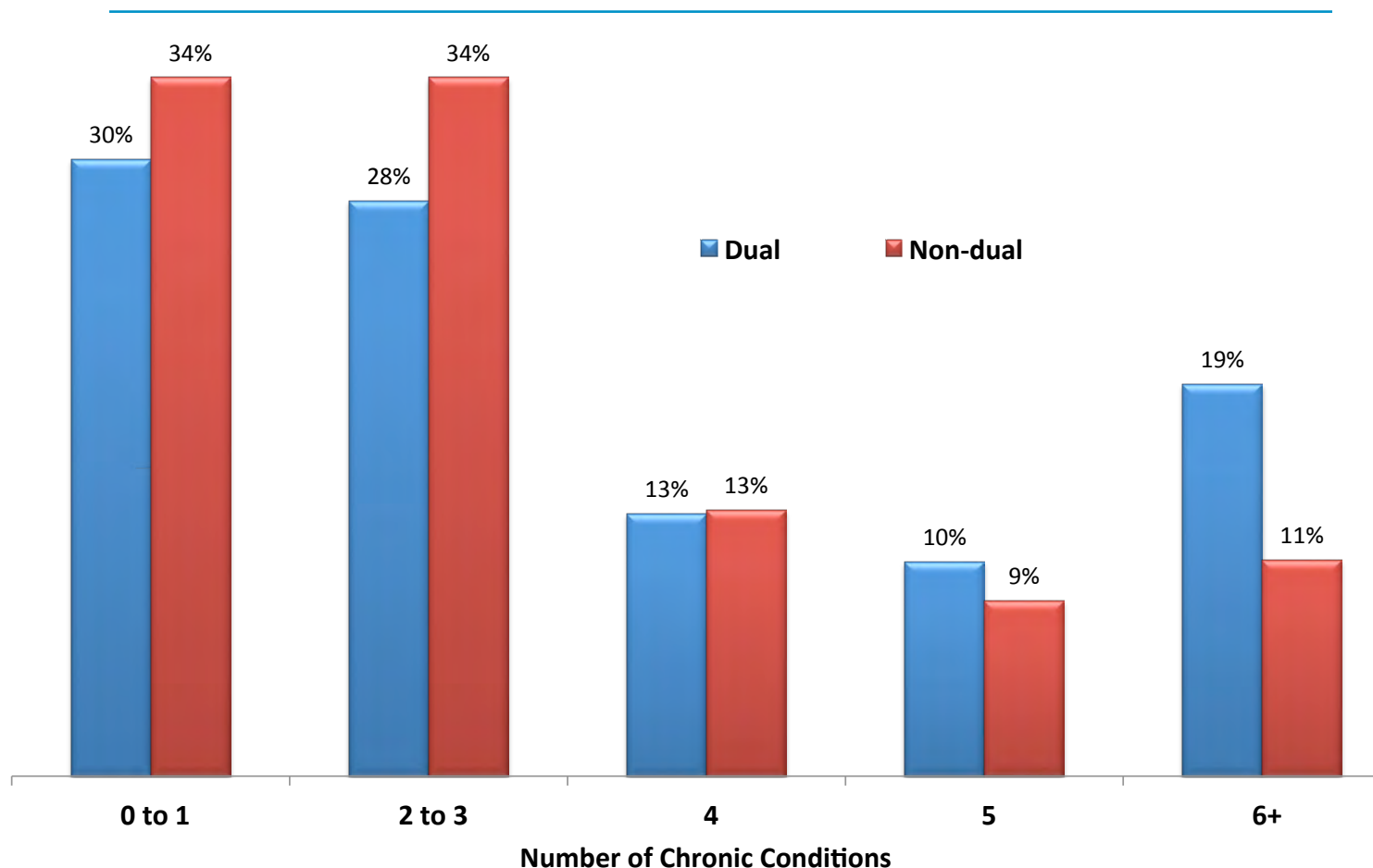


*“Multiple chronic conditions varied little across race and ethnic groups”*



### Percentage of Medicare FFS Beneficiaries by Number of Chronic Conditions and Dual Eligibility Status: 2008

Figure 1.3e



*“Dual-eligible beneficiaries were more likely to have multiple chronic conditions.”*



#### Data Highlights

- Seventy percent of dual-eligible beneficiaries had two or more conditions compared to 66% of non duals.
- Dual-eligible beneficiaries were almost twice as likely to have 6 or more chronic conditions.

## SECTION 2: MEDICARE SERVICE UTILIZATION

**M**edicare beneficiaries with multiple chronic conditions are the heaviest users of health care services. As the number of chronic conditions increases, utilization of health care services increases along with corresponding increases in health care costs. For example, hospitalizations are an important driver of health care costs, thus it is critical to know the impact chronic conditions have on inpatient admissions. In 2008, for our study population, about one in five Medicare beneficiaries were admitted to a hospital, resulting in costs over 100 billion dollars. However, beneficiaries with 6 or more chronic conditions, of whom two-thirds were hospitalized, accounted for about one-half of Medicare spending on hospitalizations. In addition, there has been rapid growth in Medicare spending for post-acute care (PAC), which is provided in four settings - skilled nursing facilities, long-term care hospitals, inpatient rehabilitation facilities and the home (i.e. home health visits). Overall, 13% of Medicare beneficiaries received post-acute care during the year, resulting in costs of 48 billion

dollars<sup>3</sup>. Beneficiaries with 6 or more chronic conditions accounted for almost 70% of these PAC costs. Similarly avoiding unnecessary hospital readmissions and emergency room visits, which can indicate poor quality of care or lack of coordinated care, is important for improving the health care outcomes of beneficiaries with multiple chronic conditions and controlling Medicare costs.

This report examined several major Medicare service types – inpatient hospitalizations, post-acute care (PAC) services, home health visits, physician office visits, emergency room visits and 30-day hospital readmissions – and utilization increased for all of them as the number of chronic conditions increased.

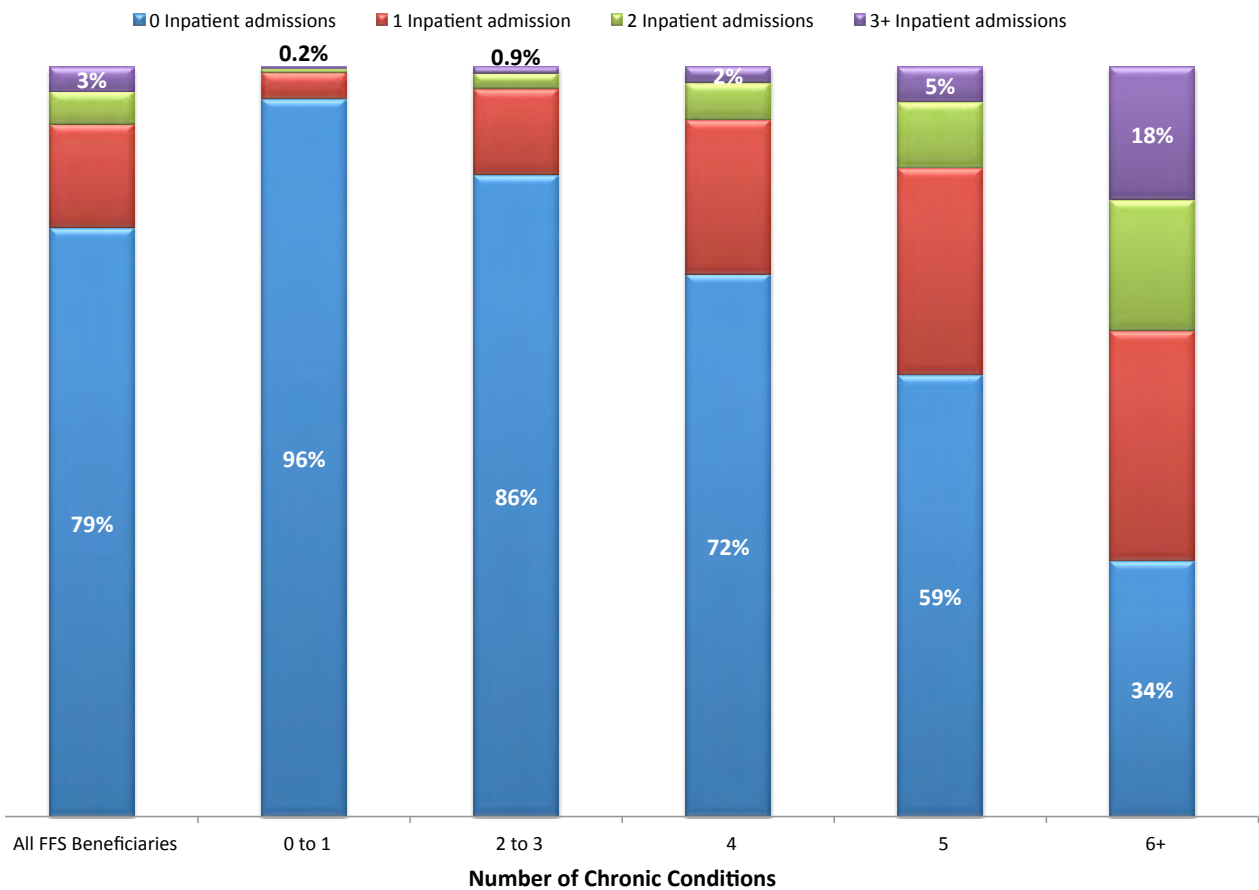
*“Beneficiaries with multiple chronic conditions were more likely to be hospitalized and had more hospitalizations during the year”*

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<sup>3</sup>Although post-acute care services generally are received after discharge from an acute care hospitalization, our estimates of beneficiaries utilizing a PAC service is based upon our total study population not only those beneficiaries discharged from an acute care hospitalization.

## Percentage of Medicare FFS Beneficiaries by Number of Inpatient Admissions and Number of Chronic Conditions: 2008

Figure 2.1

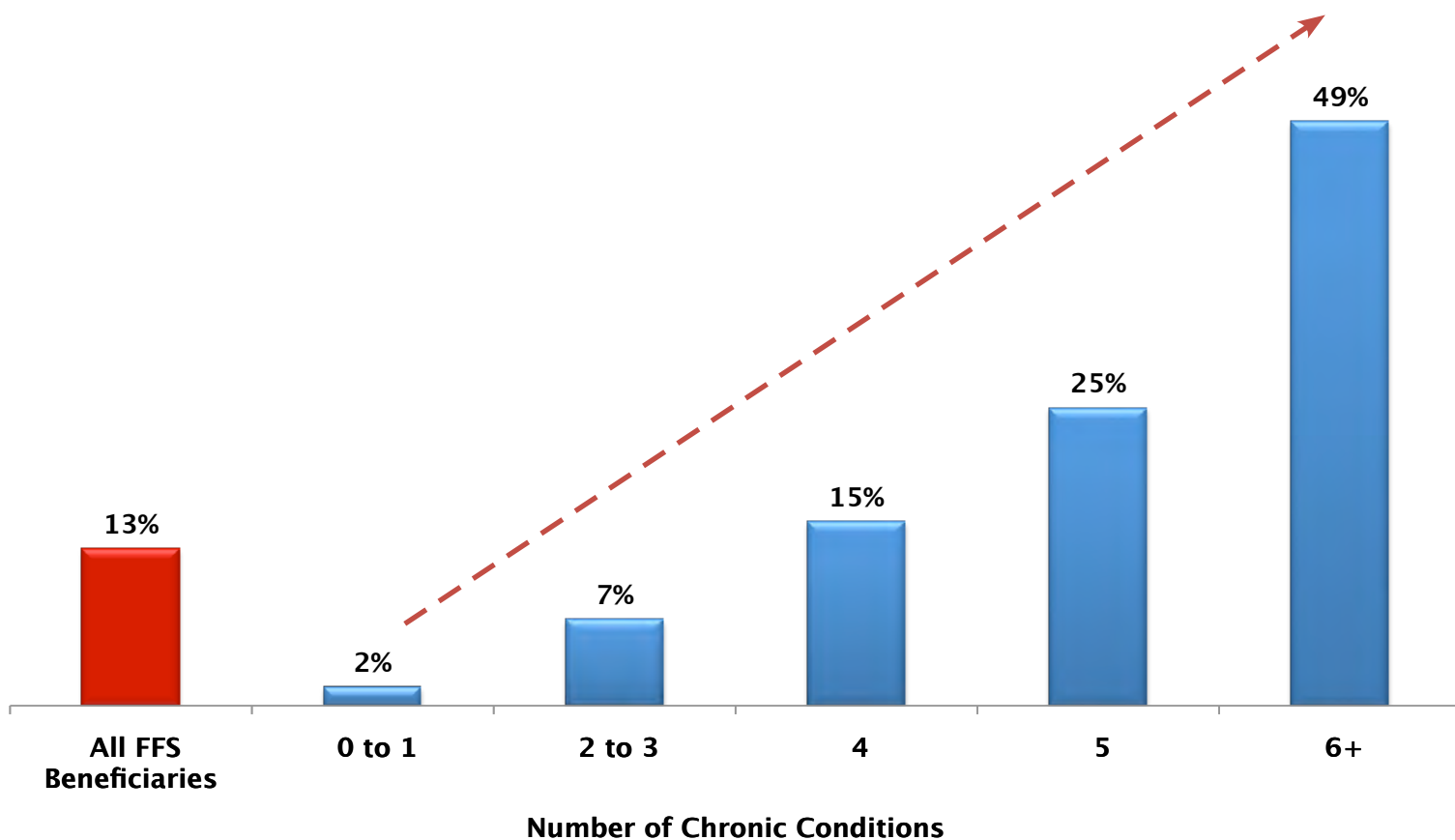


### Data Highlights

- Only 4% of beneficiaries with 0 or 1 chronic condition were hospitalized and less than 1% were hospitalized 3 or more times during the year.
- Among beneficiaries with 2 or 3 chronic conditions, 14% were hospitalized and about 1% had 3 or more hospitalizations during the year.
- Almost two-thirds of beneficiaries with 6 or more chronic conditions were hospitalized and about 18% had 3 or more hospitalizations during the year.

### Percentage of Medicare FFS Beneficiaries with at Least One Post-Acute Care Visit by Number of Chronic Conditions: 2008

Figure 2.2



*“There was a steady increase in the percentage of Medicare beneficiaries receiving post-acute care services as the number of chronic conditions increased”*



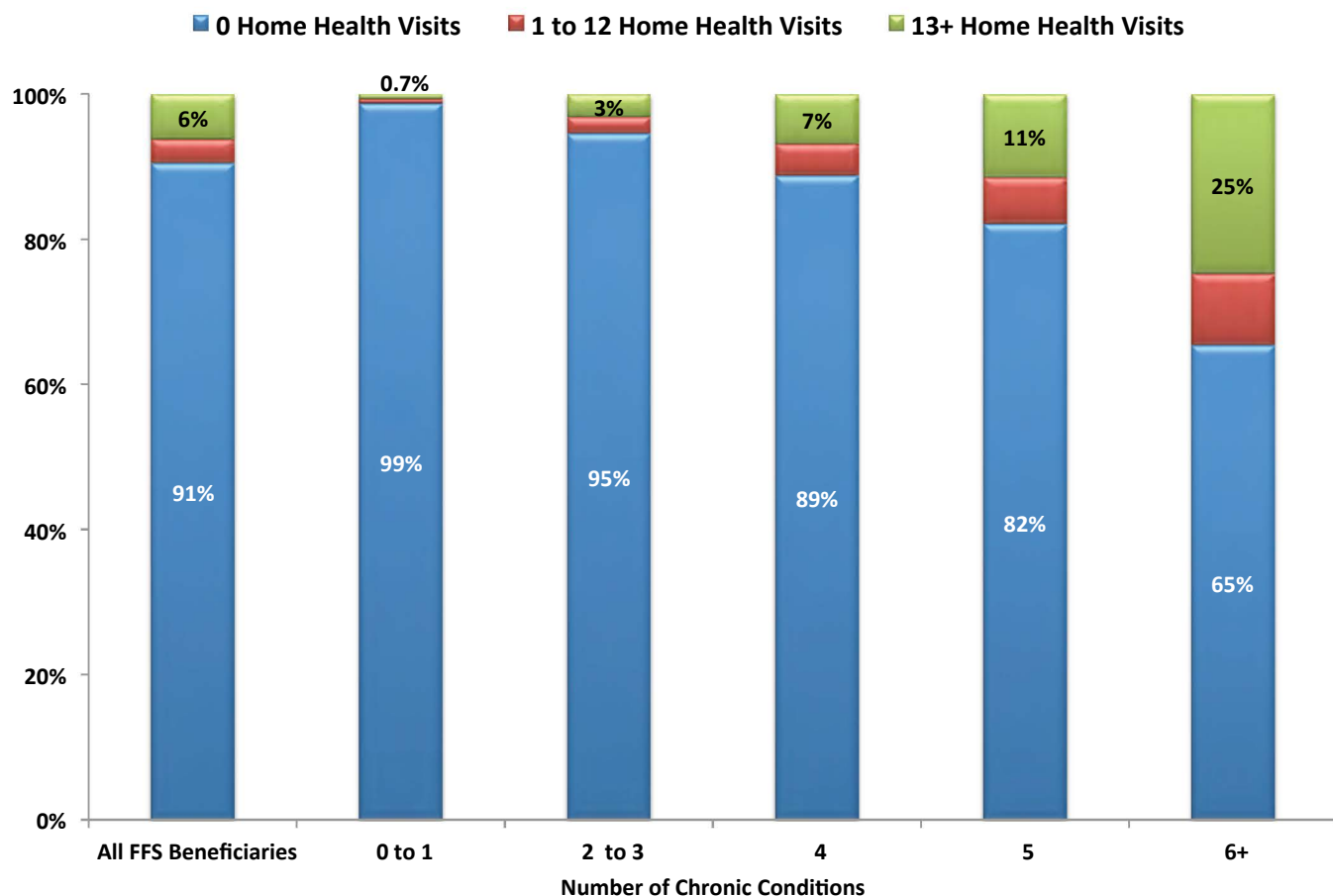
#### Data Highlights

Only 2% of beneficiaries with 0 or 1 chronic condition received care in a post-acute care setting compared to:

- Seven percent with 2 or 3 chronic conditions;
- Fifteen percent with 4 chronic conditions;
- One-quarter with 5 chronic conditions and;
- Almost one-half of the beneficiaries with 6 or more chronic conditions.

## Percentage of Medicare FFS Beneficiaries by Number of Home Health Visits and Number of Chronic Conditions: 2008

Figure 2.3



### Data Highlights

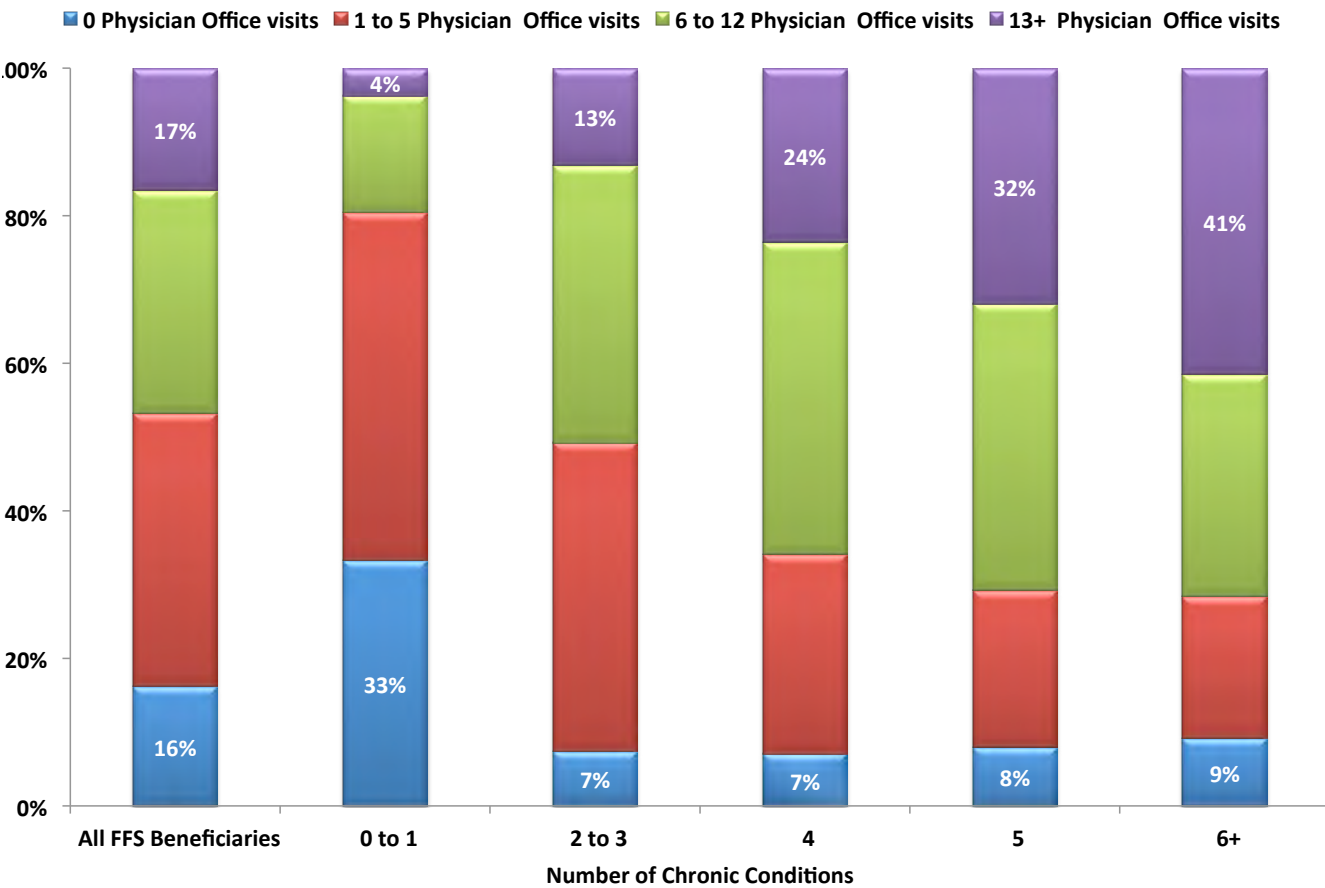
*“Beneficiaries with multiple chronic conditions were high users of home health visits”*



In 2008, almost 3 million beneficiaries (just under 10%) received at least one home health visit during the year and 6% received 13 or more home health visits during the year (more than 1 per month on average). In contrast, **one-quarter** of beneficiaries with 6 or more chronic conditions received 13 or more visits during the year.

Percentage of Medicare FFS Beneficiaries by Number of Physician Office Visits and Number of Chronic Conditions: 2008

Figure 2.4



*“Most Medicare beneficiaries (84%) visited their doctor at least once during the year, but beneficiaries with multiple chronic conditions had more doctor visits”*



Data Highlights

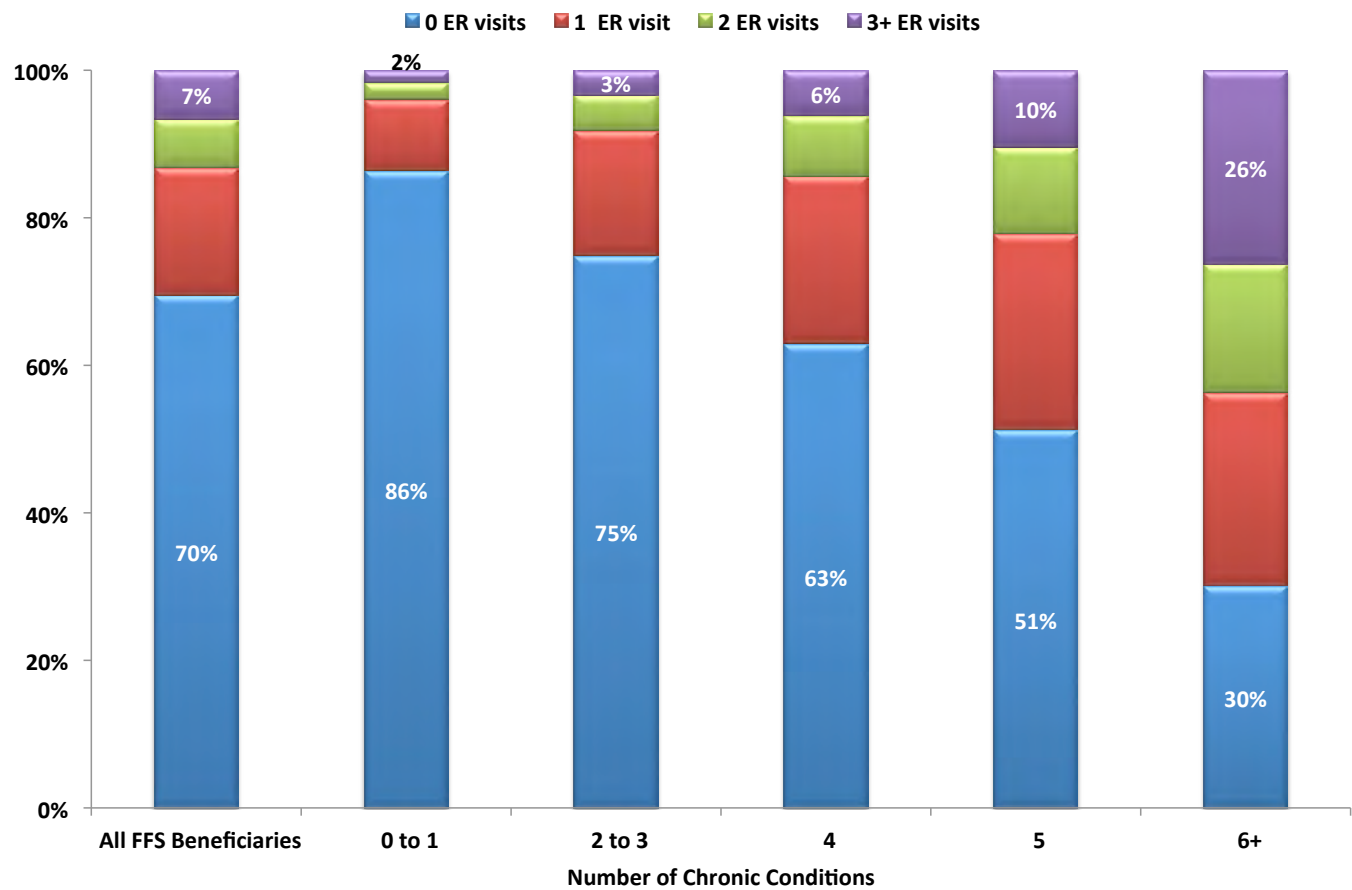
Compared to beneficiaries with 0 or 1 chronic condition, having 13 or more doctor visits during the year (more than one per month on average) was:

- More than three times as high for those with 2 or 3 chronic conditions.
- Six times as high for those with 4 chronic conditions.
- Eight times as high for those with 5 chronic conditions.
- More than 10 times as high for those with 6 or more chronic conditions.



Percentage of Medicare FFS Beneficiaries by Number of Emergency Room Visits and Number of Chronic Conditions: 2008

Figure 2.5



*“Beneficiaries with multiple chronic conditions were more likely visit the emergency room and had more ER visits during the year ”*



Data Highlights

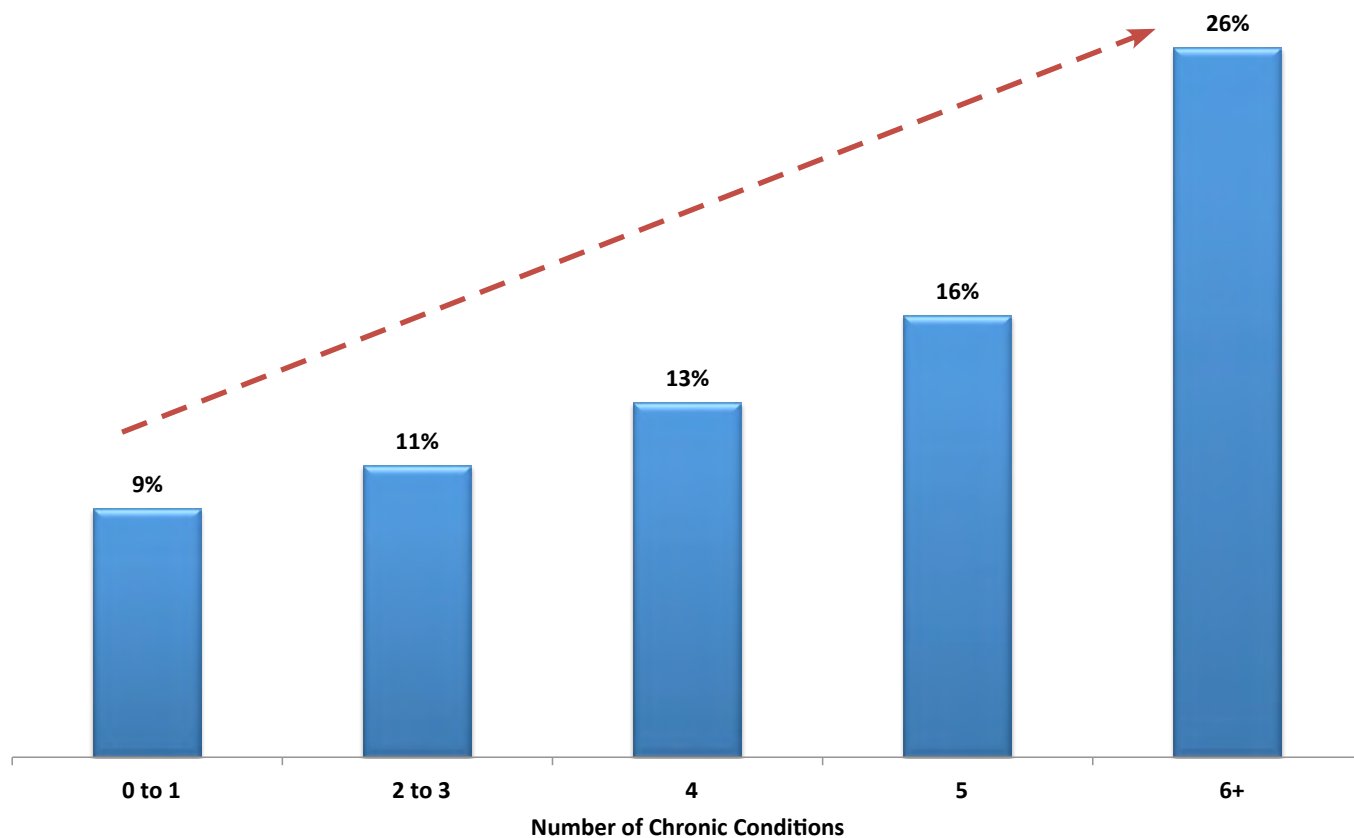
- Fourteen percent of beneficiaries with 0 or 1 chronic condition had an ER visit and only 2% were high users of the ER – 3 or more ER visits during the year.
- Among beneficiaries with 2 or 3 chronic conditions, 25% had an ER visit and 3% were high ER users.
- Seventy percent of beneficiaries with 6 or more chronic conditions had an ER visit and over one-quarter were high ER users.

## Percentage of Hospital Admissions with a Readmission Within 30 Days

### SECTION 3: MEDICARE SPENDING

Any Number of Chronic Conditions: 2008

Figure 2.6a



### Data Highlights

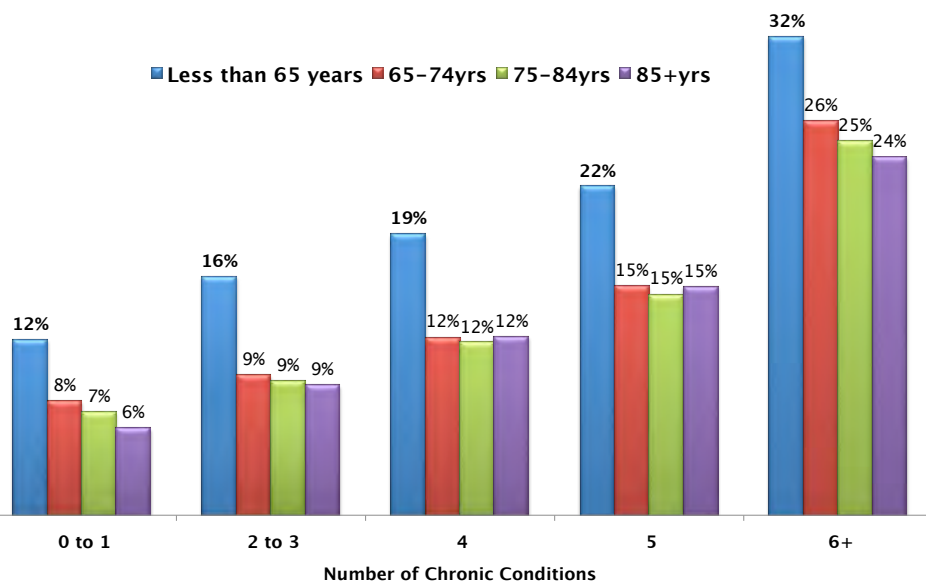
*“Hospital readmissions increased with the number of chronic conditions”*



- In 2008, 19% (or 1.9 million) of all hospitalizations resulted in a readmission within 30 days. As the number of chronic conditions increased so did readmission rates.
- Nine percent of beneficiaries with 0 or 1 chronic condition had a hospital readmission within 30 days.
- Over one-quarter of beneficiaries with 6 or more chronic conditions had a hospital readmission within 30 days.

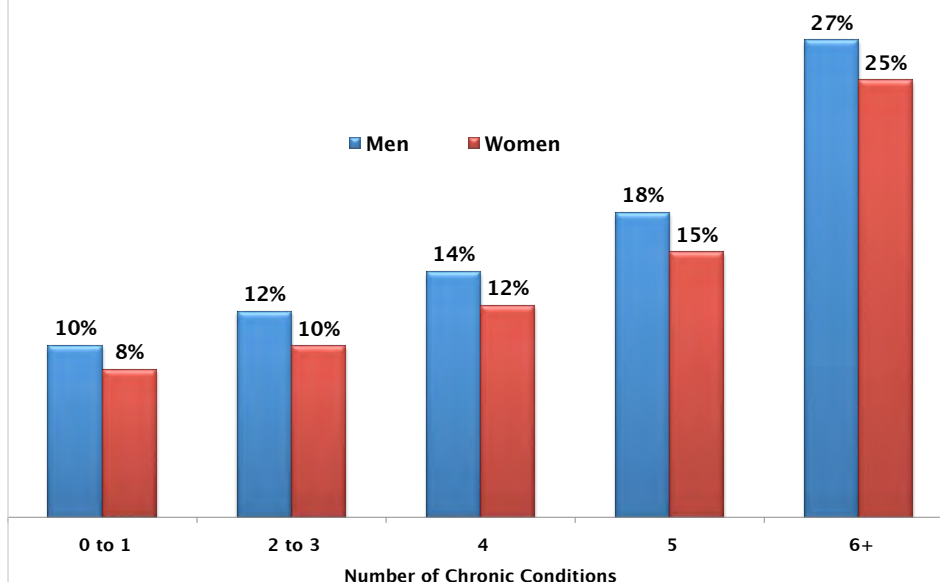
### Percentage of Hospital Admissions with a Readmission Within 30 Days by Number of Chronic Conditions and Age: 2008

Figure 2.6b



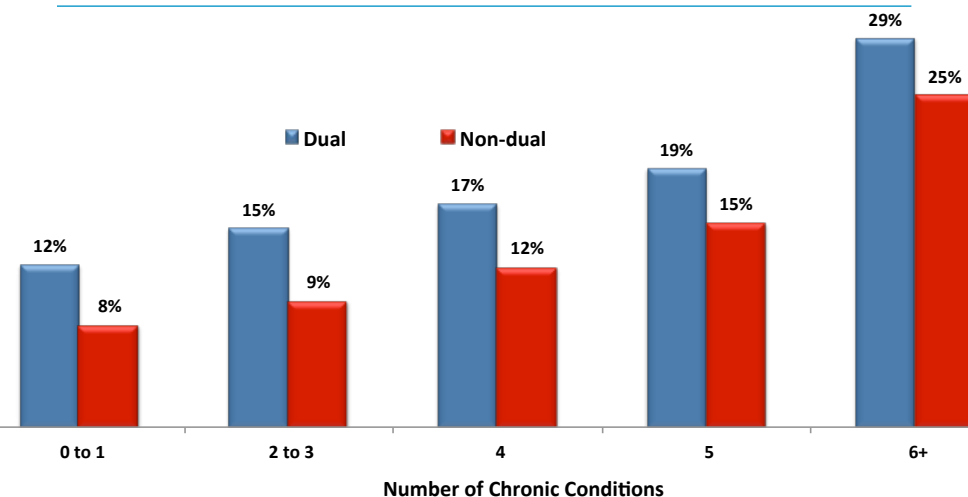
### Percentage of Hospital Admissions with a Readmission Within 30 Days by Number of Chronic Conditions and Sex: 2008

Figure 2.6c



### Percentage of Hospital Admissions with a Readmission Within 30 Days by Number of Chronic Conditions and Dual Eligibility Status: 2008

Figure 2.6d



### Data Highlights

- For all socio-demographic groups, hospital readmissions increased with the number of chronic conditions.
- Men had higher rates of hospital readmissions compared to women.
- Dual-eligible beneficiaries had higher rates of hospital readmissions compared to other beneficiaries.

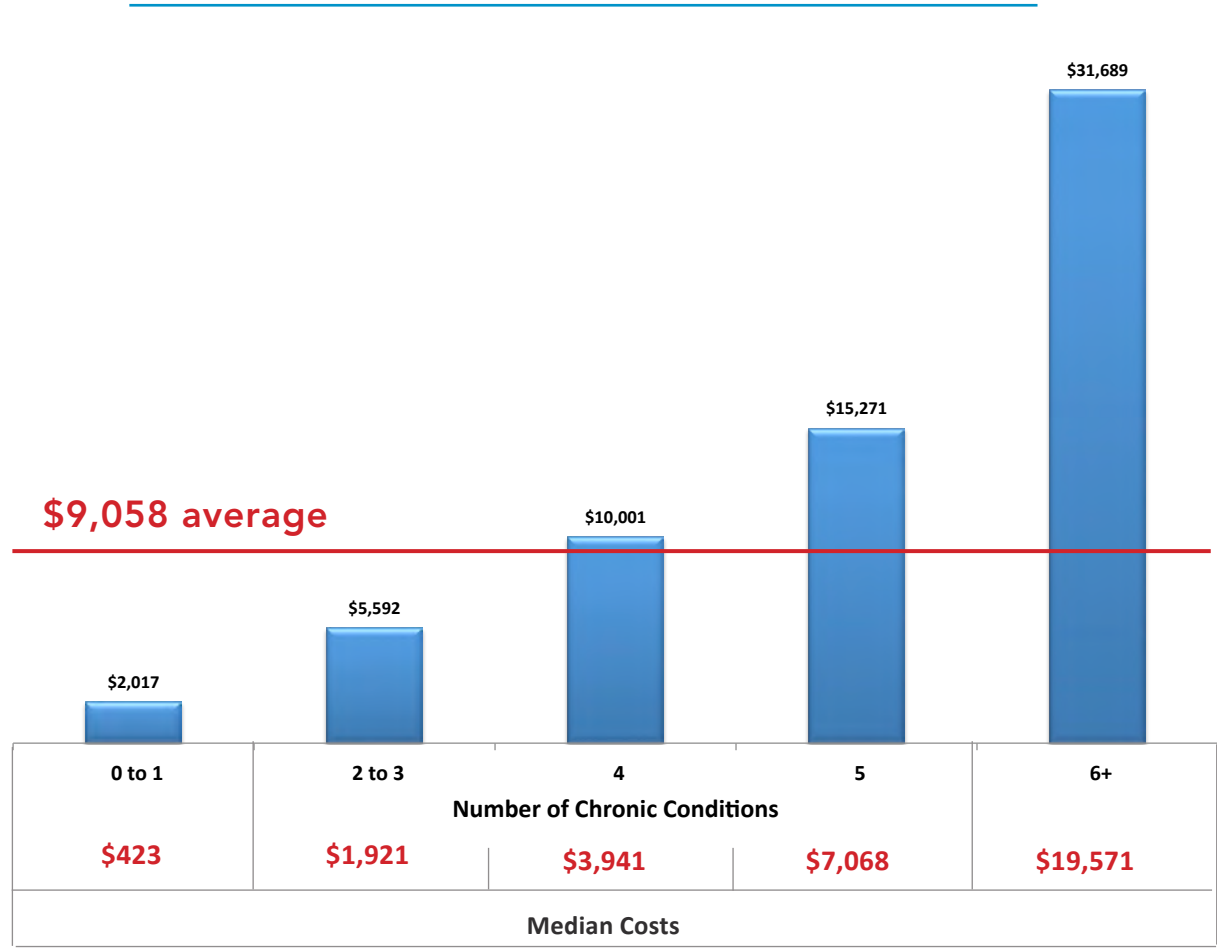
The costs of chronic health conditions among Medicare beneficiaries have far-reaching implications for the Medicare system. In 2008, for our study population, Medicare spending was over 280 billion dollars. The largest group of beneficiaries accounting for these costs was those with multiple chronic conditions, at 260 billion dollars; those with 6 or more chronic conditions cost about 120 billion dollars. Inpatient services, such as hospital admissions, accounted for most Medicare spending, with about one-half of inpatient costs attributable to beneficiaries with 6 or more chronic conditions. Medicare beneficiaries with multiple chronic conditions are higher users of health care services, but as the number of chronic conditions increase the share of Medicare spending among specific services varies greatly.

*“Medicare spending increased with the number of chronic conditions”*



Per Capita Medicare Spending for Medicare FFS Beneficiaries  
by Number of Chronic Conditions: 2008

Figure 3.1a

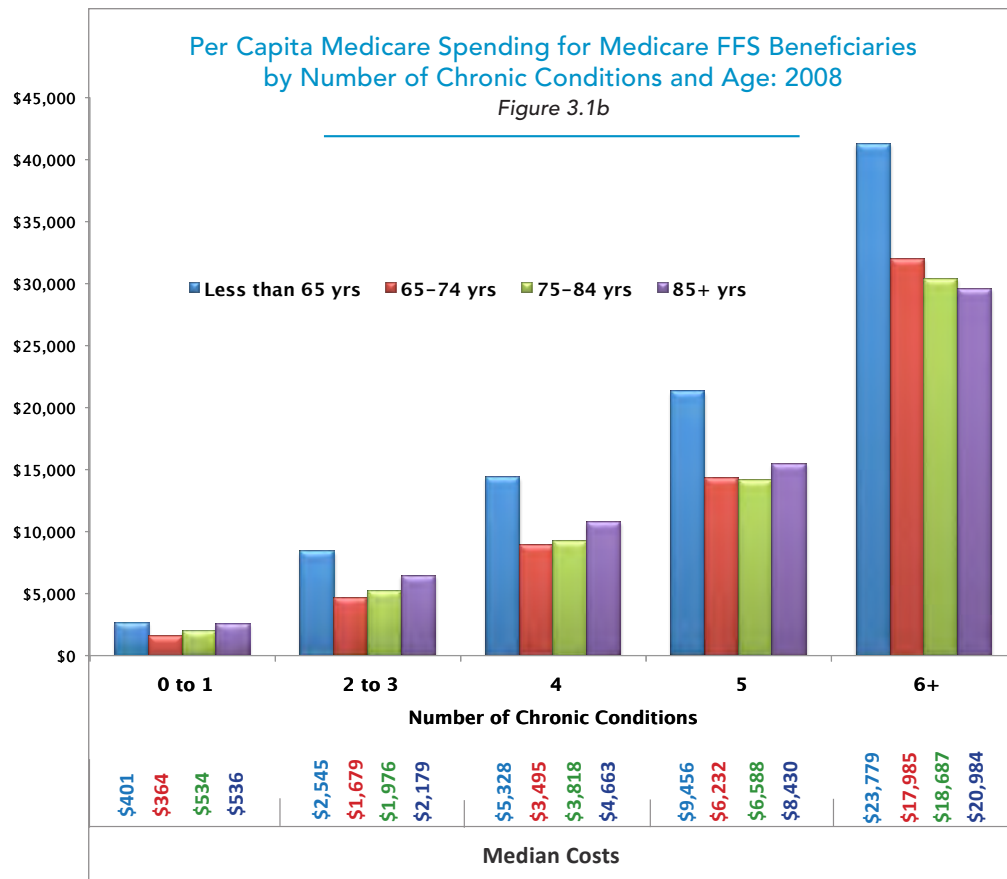


Data Highlights

- Compared to beneficiaries with 0 or 1 chronic condition, average Medicare spending was 3 times greater for beneficiaries with 2 or 3 chronic conditions.
- For beneficiaries with 6 or more chronic conditions, average Medicare spending was over 15 times greater and these beneficiaries were more likely to have heart failure, chronic kidney disease, COPD, atrial fibrillation, and stroke.

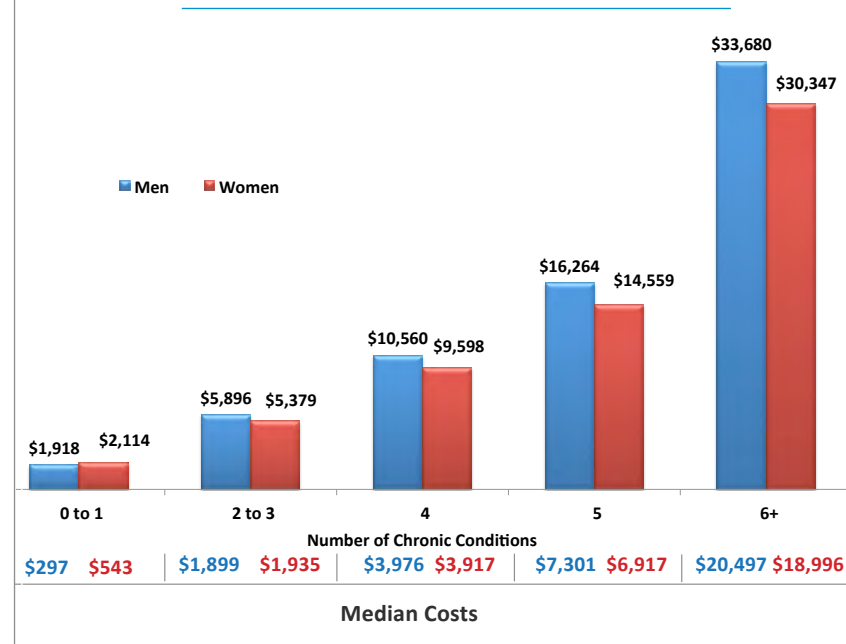
Per Capita Medicare Spending for Medicare FFS Beneficiaries  
by Number of Chronic Conditions and Age: 2008

Figure 3.1b



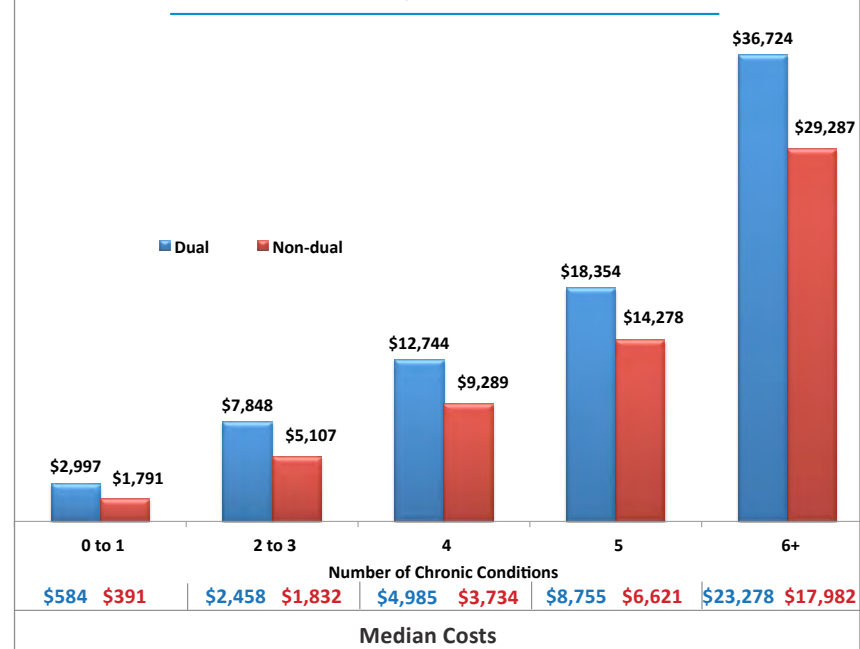
Per Capita Medicare Spending for Medicare FFS Beneficiaries  
by Number of Chronic Conditions and Sex: 2008

Figure 3.1c



Per Capita Medicare Spending for Medicare FFS Beneficiaries  
by Number of Chronic Conditions and Dual Eligibility Status: 2008

Figure 3.1d

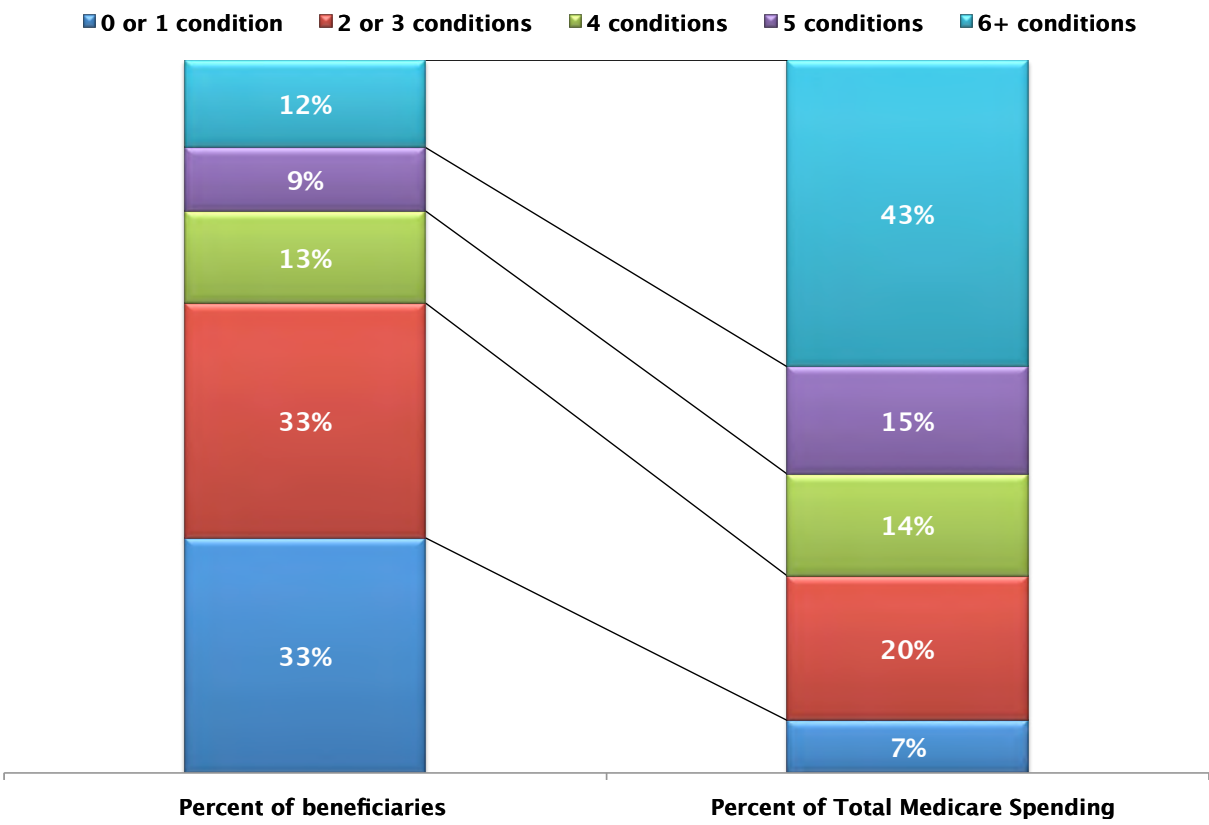


*“For all socio-demographic groups, average Medicare spending per beneficiary increased with the number of chronic conditions.”*



### Distribution of Medicare FFS Beneficiaries by Number of Chronic Conditions and Total Medicare Spending: 2008

Figure 3.2



*“Beneficiaries with multiple chronic conditions accounted for a disproportionate share of Medicare spending”*

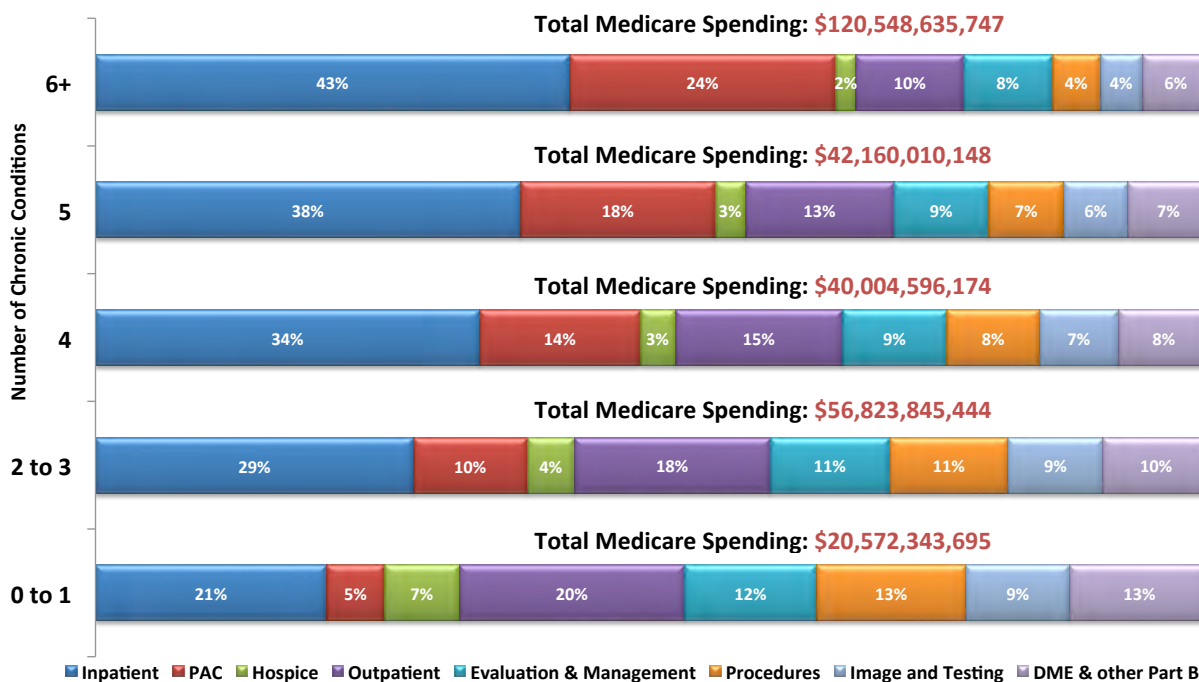


#### Data Highlights

The **one-third** of beneficiaries with 0 or 1 chronic condition accounted for only **7%** of Medicare spending, whereas the **12%** with 6 or more chronic conditions accounted for **43%** of Medicare spending.

## Spending on Medicare Services as a Percentage of Total Medicare Spending Among Medicare FFS Beneficiaries by Number of Chronic Conditions: 2008

Figure 3.3



### Data Highlights

*“Medicare spending on specific services varied considerably by the number of chronic conditions”*

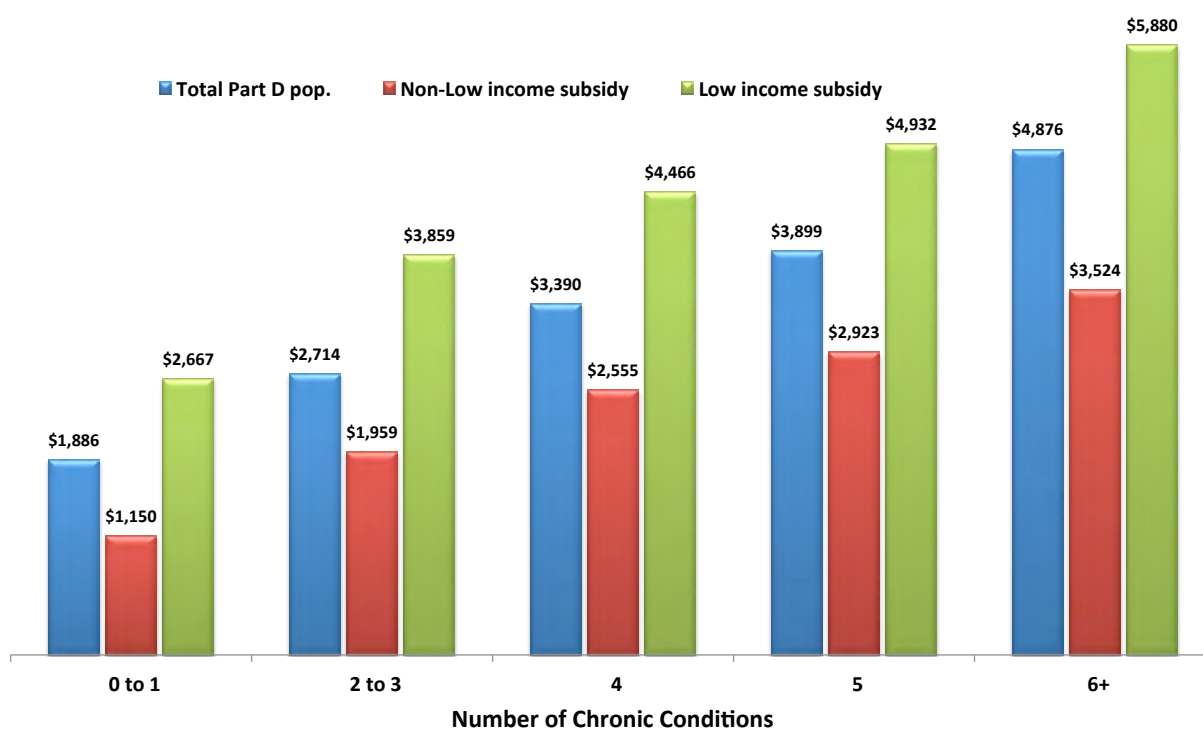


As the number of chronic conditions increased, the share of Medicare spending for inpatient hospitalizations and post-acute care (PAC) services increased, while the share of spending for outpatient and evaluation and management services decreased.

Drug costs are another important factor for people with multiple chronic conditions. Medicare Part D beneficiaries with chronic conditions are likely to have higher gross drug expenditures, putting them at increased risk of exceeding their initial coverage limit. This may be particularly true for those beneficiaries who are eligible for a subsidy for their Part D coverage, due to their low income level (LIS). Part D beneficiaries with a LIS tend to have average drug costs that are about double that of those not receiving the subsidy. Moreover, LIS beneficiaries also tend to be dual-eligible beneficiaries, who tend to have more chronic conditions.

### Per Capita Gross Drug Costs for Medicare FFS Beneficiaries with Part D Coverage by Number of Chronic Conditions: 2008 (N = 15,633,291)

Figure 3.4



#### Data Highlights

- Part D beneficiaries with multiple chronic conditions had higher gross drug costs.
- Compared to beneficiaries with 0 or 1 chronic condition, those with 2 or 3 chronic conditions had drug costs that were 1.4 times higher, while those with 6 or more chronic conditions had drug costs that were 2.5 times higher.

*“Part D gross drug costs increased with the number of chronic conditions”*



## METHODOLOGY AND DATA SOURCE

The data used in this report come from the 2008 CMS administrative claims data for 100 percent of Medicare beneficiaries enrolled in the fee-for-service (FFS) program, which are available from the CMS Chronic Condition Data Warehouse ([www.ccwdata.org](http://www.ccwdata.org)). CMS launched the Chronic Condition Data Warehouse (CCW), a research database, in response to the Medicare Modernization Act of 2003 (MMA). Section 723 of the MMA outlined a plan to improve the quality of care and reduce the cost of care for chronically ill Medicare beneficiaries.

A common definition of chronic illnesses are those conditions that last a year or more and require ongoing medical attention and/or limit activities of daily living<sup>4,5</sup>. For this report, chronic conditions were identified through Medicare administrative claims. Medicare beneficiaries were considered to have a chronic condition if the CMS administrative data had a claim indicating that they were receiving a service or treatment for the specific condition.

Detailed information on the identification of chronic conditions in the CCW is available elsewhere<sup>6</sup>.

This report examined the following 15 chronic conditions that are available as predefined conditions in the CCW and correspond with the conditions used in the HHS Strategic Framework on Multiple Chronic Conditions<sup>7</sup>:

- Alzheimer's/dementia
- Arthritis (including rheumatoid and osteoarthritis)
- Asthma
- Atrial fibrillation
- Ischemic heart disease
- Cancer (breast, colorectal, lung, and prostate)
- Chronic kidney disease
- COPD
- Depression
- Diabetes (excluding diabetic conditions related to pregnancy)
- Heart failure
- Hypertension
- Hyperlipidemia
- Osteoporosis
- Stroke/Transient ischemic attack

<sup>4</sup> Hwang W, Weller W, Ireys H, Anderson G. Out-of-pocket medical spending for care of chronic conditions. *Health Affairs* 2001;20:267-78

<sup>5</sup> HCUP, Chronic Condition Indicator <http://www.hcup-us.ahrq.gov/toolssoftware/chronic/chronic.jsp>, accessed September 13, 2011.

<sup>6</sup> Chronic Condition Data Warehouse. Available at <http://www.ccwdata.org/chronic-conditions/index.htm>, accessed September 13, 2011.

<sup>7</sup> U.S. Department of Health and Human Services. Optimum Health and Quality of Life for Individuals with Multiple Chronic Conditions. December 2010. Multiple Chronic Conditions – A Strategic Framework: Washington, DC. Available at: [http://www.hhs.gov/ash/initiatives/mcc/mcc\\_framework.pdf](http://www.hhs.gov/ash/initiatives/mcc/mcc_framework.pdf), accessed September 28, 2011.

*(Continued)*

Multiple chronic conditions were defined by counting the number of conditions listed above and grouped so that the HHS definition of MCC as two or more conditions could be identified: 0-1, 2-3, 4, 5, and 6 or more.

The study population (N = 30,923,846) included Medicare beneficiaries continuously enrolled in Medicare FFS, parts A and B for 2008. Beneficiaries who were enrolled at any point during the year in a Medicare Advantage (MA) plan were excluded as were beneficiaries who first became eligible for Medicare after January of the calendar year. Beneficiaries who died during the year were included up to their date of death if they meet the other inclusion criteria. This study population represented approximately 65% of the total Medicare population in 2008. Among this population of Medicare beneficiaries, 16.5% were less than 65 years of age (disabled and ESRD eligible) and 14% were 85 years and older. The majority were women (56%) and 20% were dual eligible beneficiaries, meaning they also were eligible for Medicaid covered services.

Data tables for each figure, some with additional information, as well as power point slides are available for download at:

[http://www.cms.gov/TheChartSeries/02\\_5\\_ChronicConditionsChartBook.asp](http://www.cms.gov/TheChartSeries/02_5_ChronicConditionsChartBook.asp).

**Notes On Interpreting The Data:**

These estimates of the prevalence of multiple chronic conditions may vary from other sources as the number of chronic conditions examined will affect estimates of MCC. Figures that present the prevalence for the individual chronic conditions do not mean that the beneficiary has only that condition. Beneficiaries with any of the specific conditions may have any of the other conditions examined or conditions not included in our list. In addition, estimates are not age or sex adjusted. Since women tend to live longer than men, without age adjustment they would be expected to have more chronic conditions. Utilization and Medicare payment information is at the beneficiary level. Utilization and Medicare payment information presented by the number of chronic conditions may include services and expenditures not related to the chronic conditions examined.

Figure 3.4 presents Part D gross drug costs for Medicare beneficiaries enrolled in Part D by number of chronic conditions. Note that Part D drug expenditures do not represent Medicare payments but rather Part D plan sponsor and beneficiary point-of sale drug costs. Enrollment in Part D is optional, with about 54-58% of those eligible for Medicare enrolling each year.

## Definitions:

**Dual eligible beneficiary** – People who receive benefits from both Medicaid and Medicare.

**Fee for service (FFS)** – Also known as “original Medicare” includes Part A (hospital insurance) and Part B (medical insurance). Beneficiaries have their choice of doctors, hospitals, and other providers, pay deductibles and coinsurance and usually pay a monthly premium for Part B.

**Gross drug costs** – Part D drug expenditures do not represent Medicare payments but rather Part D plan sponsor and beneficiary point-of sale drug costs. They represent the costs for the ingredient, the dispensing fee and the total amount attributed to sales tax. These costs do not include adjustments for rebates, discounts or other price concessions and do not include Part D plan sponsor administrative expenses.

**Hospital admissions** - Inpatient admissions include short stay acute care hospitalizations.

**Hospital readmission rate** – The percentage of hospitalizations that resulted in a readmission from all causes within 30-days.

**Median spending** – Medicare spending for half of all beneficiaries.

**Medicare** – Medicare is a United States Federal health insurance program for people 65 or older, people under 65 with certain disabilities, and people of any age with End-Stage Renal Disease (ESRD).

**Medicare spending** – Total Medicare payments for all Medicare covered services.

**Per capita spending** – Average Medicare spending per beneficiary.

**Physician office visits** - Refers to physician evaluation and management services as defined by the Berenson-Eggers Type of Service (BETOS) classification scheme and included BETOS codes M1A and M1B.

**Post-acute care (PAC) services** - Services received in skilled nursing facilities, long-term care hospitals or inpatient rehabilitation facilities as well as home health visits.