Variations in Health Care Quality:
Racial, Ethnic, and Economic Disparities in Medicare Fee-for-Service in California

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CMRI

Acknowledgments

The California HealthCare Foundation, based in Oakland, is an independent philanthropy committed to improving California's health care delivery and financing systems. For more information on CHCF, visit **www.chcf.org**.

Serving as a catalyst to improve the overall quality of health care in California, the Foundation's Quality Initiative partners with objective, credible organizations to develop and disseminate information for California consumers about quality of care. By involving consumers and their representative organizations in the quality discussion, the Quality Initiative hopes to accelerate quality improvement, public accountability, and informed health care decision making. The project was directed by Jennifer Eames of the Quality Initiative.

CMRI is a nonprofit organization dedicated to measurably improving the quality, safety, and integrity of health care. CMRI is the federally designated Quality Improvement Organization (QIO) in California. It focuses on case review and national quality initiatives identified by the Centers for Medicare and Medicaid Services.

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I. Introduction

Project Purpose

In the last three years, two major studies have indicated that California's performance on health care quality indicators is relatively low, with much room for improvement. One study,[1] reported in an article in *The Journal of the American Medical Association* (*JAMA*) in June 2000, ranked California 41 out of 52 states and territories on quality indicators defined by the Centers for Medicare and Medicaid Services (CMS). The other study,[2] reported in *JAMA* in 2000, showed that, on average, only two-thirds of fee-for-service Medicare beneficiaries in California received recommended inpatient treatment and preventive services. However, neither article identified potential sources of variation in quality of health care within the state.

California is one of the largest states geographically, has the highest proportion of the nation's Medicare beneficiaries (10 percent), and has an ethnically diverse population, even among the elderly. Its relatively low rank among states contrasts with the relatively high rank of states with smaller, more homogeneous samples. This project explores the degree to which the standard of health care for California's nearly four million Medicare beneficiaries varies by geographic, demographic, and/or socio-economic factors.

This study, a collaboration between The California HealthCare Foundation and CMRI, California's quality improvement organization (QIO), investigates possible sources of health care variation that may help explain the low ranking in the *JAMA*[1] article. It developed geographic, racial, and socio-economic profiles in quality of health care provided to people 65 years and older in California—specifically the fee-for-service Medicare population—that reveal variations in quality within the state.

Taken at face value, a number of these findings are likely to be of considerable interest to researchers, health care providers, public health officials, and the public. For example, the findings lend support to other studies documenting the lower quality of care received by African American beneficiaries as well as their lower health status. The study also points to key populations in need of specific preventive care improvements, such as immunizations and screenings. However, because this is a cross-sectional, not a longitudinal study, no inferences can be drawn linking health status with performance on the quality indicators studied. These variations are best viewed as a guide for researchers and providers to help target potential problem areas for further analysis and corrective action.

This report briefly highlights the findings of the study, "Quality of Care Collaboration in California: A CMRI/CHCF Study,"[3] defines the demographics of the Medicare population, describes the quality indicators on which the study was based, examines the results by categories of interest; and outlines the study methodology.

Highlights

- In keeping with numerous other studies, this analysis found that the health status and quality of care received by African Americans in California was significantly worse than average for all conditions and most quality indicators studied.

- California compares most poorly with national averages on prevention indicators—colorectal screening and immunization rates, for example, are less than half the national average. Even when hospitalized for pneumonia, the vast majority of patients are not asked about their immunization status, as clinical guidelines recommend.

- The largest variations discovered in this study were the relatively low rates of preventive care services received by beneficiaries who were non-Caucasian, dual eligible, or residing in impoverished, undereducated, or largely Hispanic neighborhoods.

- For inpatient care, in addition to deficiencies in pneumonia care mentioned above, quality indicator rates for those hospitalized with atrial fibrillation (an independent risk factor for stroke) were some of the lowest observed, especially for Asians, African Americans, and those in undereducated or impoverished areas

- On some indicators, however—for example, diabetes management and congestive heart failure care—California had better scores than national averages.

- Geographic variations were difficult to generalize—no clearly identifiable areas emerged as having exceptionally good or exceptionally poor preventive or inpatient care.

- Results were mixed for Asians, Hispanics and Caucasians, with no consistent trends in performance

II. The Medicare Population in California

During the observation year 2000, there were 3,429,554 beneficiaries age 65 and older living in California. Not quite half (42 percent) were enrolled in managed care at that time. Most beneficiaries enrolled in managed care (57 percent) were female, and nearly one-quarter (23 percent) were age 80 and older.

This study is based on a full sample of the 58 percent of the over-65 Medicare population enrolled in fee-for-service. Results include all fee-for-service Medicare beneficiaries age 65 and older, with data reported for the period 199–2000. Comparable data are not available for the Medicare Managed Care population.

Highly diverse, California is home to the largest numbers of African American, Asian, and Native American Medicare beneficiaries in the country. The Medicare population in California, however, is less diverse than the state's overall demographics. The majority (79 percent) of Medicare beneficiaries ages 65 and older in California identify themselves as Caucasian.

Asians make up the largest non-Caucasian group of Medicare beneficiaries in California. Just over 231,000 Asian beneficiaries age 65 and older represent nearly 7 percent of the Medicare population. The proportion of Asian Medicare beneficiaries is less than 1 percent in 17 of 58 counties.

Nearly 180,000 African Americans make up 5 percent of the Medicare population over the age of 65 in California. There are eight counties in which fewer than ten individual African American beneficiaries reside.

Hispanics represent approximately 5 percent (166,000) of Medicare beneficiaries in California. Hispanic Medicare beneficiaries are generally younger than beneficiaries of other race and ethnic groups. There are 13 counties in which Hispanics make up less than 1 percent of the Medicare beneficiary population.

More Native American Medicare beneficiaries age 65 and older (3,500) live in California than in any other state. The majority of Native American beneficiaries live in rural areas, in contrast with all other ethnic groups studied. Nearly all California counties (53 of 58) have a Native American beneficiary concentration of less than 1 percent.

The state of California purchases Medicaid and other health care coverage for 19 percent of Medicare beneficiaries. The majority of those eligible for both Medicare and Medicaid or other coverage (called "Dual Eligibles") are women (65 percent), and 29 percent are age 80 and older. The majority of beneficiaries with dual eligibility reside in the Central Valley and in urban areas.

Clinical Conditions/Quality Indicators

Nine clinical services and conditions affecting the elderly were studied. These clinical topics disproportionately affect older adults, and are of major interest to CMS, the funding organization of the Medicare program. The four preventive care services were: breast cancer screening, colorectal cancer screening, diabetes care, and influenza/pneumococcal immunizations. The five

inpatient conditions were: acute myocardial infarction (AMI), atrial fibrillation (AF), congestive heart failure (CHF), pneumonia, and stroke.

Breast Cancer Screening

Breast cancer is the most prevalent cancer and second leading cause of cancer mortality in California women. Yet many women do not take advantage of regular breast cancer screening with mammography, which can detect cancer in its earlier stages, when the risk of mortality is much lower.

The CMRI quality indicator measures the proportion of women age 65 and older at the beginning of a two-year time period that have had at least one mammogram within that time period.

Colorectal Cancer Screening

Colorectal Cancer (CRC) is the second leading cause of cancer death in the United States, primarily affecting those age 50 and older. Every year, approximately 130,000 Americans are diagnosed with CRC, and more than 56,000 die from the disease. Only about 20 percent of California's Medicare beneficiaries take advantage of CRC screening coverage, even though CRC is largely preventable with screening.

The CMRI quality indicator looks at whether a beneficiary has had

- a fecal occult blood test;
- a flexible sigmoidoscopy;
- a colonoscopy; and/or
- a barium enema.

Diabetes Care

In 1998, the CMS organized the Diabetes Quality Improvement Project (DQIP), which developed and implemented a set of standardized uniform performance measures for diabetes care. CMS selected three of the DQIP measures (that could be collected from Medicare billing data) to monitor diabetes care among fee-for-service Medicare beneficiaries with diabetes in every state. These measure are:

A1C (a lab test that indicates the average blood sugar over the past two to three months) tested annually;

- Eye examination performed biennially; and
- Lipid profile performed biennially.

Outpatient Immunization

Pneumonia and influenza are leading causes of death in the elderly, yet much of the suffering from these diseases can be reduced or eliminated with two simple vaccines, one of which is the annual flu shot. Very few beneficiaries receive either of these vaccines. The Centers for Disease

Control advise all adults over the age of 65 to be vaccinated against pneumonia and influenza. CMRI's immunization quality indicator looks at whether:

- beneficiaries over the age of 65 received the influenza vaccine in the most recent flu season, and
- a beneficiary has ever received the pneumoccocal vaccination.

Acute Myocardial Infarction (AMI)

Cardiovascular disease is the biggest killer in the United States. Approximately 1.1 million Americans experience a heart attack each year. Every minute, an American dies of coronary heart disease. In 1998, more than 19,000 California fee-for-service Medicare beneficiaries were hospitalized with AMI. Though there is widespread consensus on care for acute myocardial infarction, recommended treatments to prevent further morbidity and mortality are underutilized. In addition to the human toll, this costs Medicare over $200 million per year.

Since 1999, CMRI has routinely monitored hospitals on the following AMI quality indicators:

- Early administration of aspirin (within 24 hours of hospital arrival);
- Aspirin prescribed at discharge;
- ACE inhibitor prescribed at discharge for low left ventricular ejection fraction (LVEF);
- Smoking cessation counseling;
- Beta-blocker prescribed at discharge; and
- Early administration of beta-blocker (within 24 hours of hospital arrival).

Atrial Fibrillation

Atrial fibrillation (AF) is a common cardiac arrhythmia, affecting up to two million people in the United States, most of whom are age 65 and older. People with chronic AF are six times more likely to suffer a stroke than are those without AF.

The CMRI quality indicator for AF examines the degree to which Medicare beneficiaries admitted for AF were prescribed the anticoagulant drug Warfarin at discharge. Atrial fibrillation incidence increases with age and is an independent risk factor for stroke. Guidelines recommend that patients be treated with anticoagulants, which can reduce stroke risk by 62 percent. However, many beneficiaries do not receive the recommended treatment.

Congestive Heart Failure (CHF)

Congestive heart failure (CHF) is a major cause of both morbidity and mortality for people age 65 and older. CHF accounts for more hospital admissions than any other diagnosis for people age 65 and older. Annual expenditures in the United States for CHF range from $10 billion to $40 billion. Although mortality from CHF is declining, the prevalence of heart failure appears to be rising as the general population ages.

Angiotensin-converting enzyme (ACE) inhibitors represent a major advance in the treatment of CHF for patients with left ventricular systolic dysfunction. Recent studies demonstrated their efficacy in both prolonging and improving the quality of life. However, despite randomized control trials demonstrating their effectiveness in mortality reduction, many studies have documented persistent low rates of ACE inhibitor prescription.

The CMRI quality indicator for CHF reflects the American College of Cardiology guidelines for patients hospitalized with CHF, including prescription of:

- ACE inhibitors for all patients with significantly reduced left ventricular ejection fraction, unless contraindicated;
- Hydralazine and isosorbide dinitrate in patients who cannot take ACE inhibitors; and
- Diuretic drugs for patients with fluid overload.

Community Acquired Pneumonia (CAP)

Pneumonia and influenza are the sixth leading causes of death in the United States. Both the incidence of pneumonia and the deaths from pneumonia increase with age.

For hospitalized pneumonia patients, research in leading medical journals supports early administration of certain antibiotics for treating pneumonia, and vaccination for influenza and pneumococcus. The CMRI quality indicator for pneumonia hospitalization looks at the degree to which patients received the following recommended care:

- Initial antibiotic dose within eight hours of admission;
- Initial antibiotic consistent with current recommendations;
- Collection of blood cultures before antibiotic administration;
- Screening for influenza vaccination among CAP patients; and
- Screening for pneumococcal vaccination among CAP patients.

Stroke

Stroke is the third leading cause of death in the United States. For people over 55, the risk of having a stroke more than doubles in each successive decade of their life. In 1998, there were over 30,000 Medicare fee-for-service hospitalizations in California with a primary diagnosis of stroke or transient ischemic attack (TIA), at a cost of $200 million.

While aspirin and other antithrombotic agents have been shown to reduce the risk of stroke by 22 percent, other CMRI research reveals that in the entire population of beneficiaries, one in four ideal patients in California are not prescribed this simple life-saving treatment.

The American College of Chest Physicians (ACCP) recommends “that every patient who has experienced a noncardioembolic (atherothrombotic, lacunar, or cryptogenic) stroke or TIA and has no contraindication receives an antithrombotic agent regularly to reduce the risk of recurrent

stroke and other vascular events." Therefore, the CMRI quality indicator for stroke hospitalization is whether the beneficiary received antithrombotic drugs.

III. Findings

General Observations

The study revealed several sources of variation that may have contributed to California's low overall performance on quality indicators compared to other states. Consistent variation was most notable in the race and socio-economic profiles, and much less so in the geographic profile.

In general, there were very few geographic trends in quality of health care received by beneficiaries. One exception was Southern California, which showed lower performance rates than the statewide average in all preventive care services. Los Angeles County and the Desert Sierra Region were the primary contributors to the lower rates for Southern California. A large proportion of the state's beneficiaries reside in Los Angeles County and the Desert Sierra Region, so increasing the rates of preventive care services in these geographic areas will also help raise California's rates to approach or exceed national rates.

On the positive side, statewide rates of breast cancer screening and diabetes care were generally similar to, or exceeded, national rates. State hospitalization rates were consistently better than national rates for most clinical conditions, with pneumonia and stroke the most common causes for hospitalization. Congestive heart failure indicator rates, which exceeded national rates, and diabetes care were among the best performance areas. The rates of diabetes care in California exceeded national rates, even among non-Caucasians, dual eligibles, and those in undereducated, impoverished, or largely Hispanic neighborhoods, all of which had better diabetes care than national averages for at least one of three quality indicators. Still, diabetes mortality is a serious problem for Medicare beneficiaries, particularly African Americans and Hispanics, who also suffer much higher rates of diabetes complications than other groups.

The largest variations discovered in this study were the relatively low rates of preventive care services received by beneficiaries with lower socio-economic status—that is, those who were non-Caucasian, dual eligible, or residing in impoverished, undereducated, or largely Hispanic neighborhoods. Note that these last four groups are primarily made up of non-Caucasians.

Of considerable concern was California's performance on preventive care services overall. Statewide rates of colorectal cancer screening and immunizations were lower than rates seen across the United States—only half the levels of national rates. This was true for all racial, geographic, and socio-economic groups in the state. Colorectal cancer screening and immunizations were also almost always at or near the bottom of California's performance rankings of the nine clinical topics. Quality indicator rates for these two clinical topics were among the lowest found in the study.

Regarding health status, breast and colorectal cancer incidence in Medicare beneficiaries was much higher in Caucasians and African Americans than in other groups across the state. However, African Americans had a higher risk of late stage cancer diagnosis and cancer mortality than other groups, particularly for colorectal cancer. Across the state, the proportion of beneficiaries diagnosed with late stage colorectal cancer was almost always four to six times higher than the proportion diagnosed with late stage breast cancer. Late stage cancer diagnosis has a much higher risk of death than diagnosis at earlier stages.

Other factors detracting from California's performance were variations in inpatient hospital care, particularly in the areas of pneumonia and stroke. Even though hospitalization rates for pneumonia and stroke in California were lower than national hospitalization rates, these were the two most common reasons for hospitalization in beneficiaries around the state (with the exception of African Americans, who were hospitalized most frequently for congestive heart failure and pneumonia).

High rates of pneumonia hospitalization may be correlated with the low rates of influenza/pneumococcal immunizations seen across the state. Even when hospitalized, the vast majority of patients are not queried about their immunization status, as recommended clinical guidelines suggest. In fact, quality indicators for pneumonia immunization status were some of the very lowest of the indicators studied across all nine clinical topics among all racial, geographic, and socio-economic groups. For pneumonia, Hispanics were the most at risk of not receiving recommended hospital care; they also had the highest rate of 30-day readmissions once discharged. But Hispanics had the lowest risk, and Caucasians the highest risk, of short- and long-term death from pneumonia.

With regard to stroke, statewide quality-of-care indicator rates for stroke and atrial fibrillation (an independent risk factor for stroke) were noticeably lower than national rates. For stroke, all non-Caucasian groups were more likely not to receive recommended hospital care, while Hispanics were again the most likely to be readmitted within 30 days. African Americans had the highest long-term mortality rate from stroke, while Caucasians and Asians had the highest rates of short-term mortality from stroke. One surprising finding, however, was that beneficiaries with low socio-economic status (that is, those who were dual eligible or residing in undereducated, impoverished, or largely Hispanic neighborhoods) typically had better than average stroke care. Nevertheless, atrial fibrillation quality indicator rates for Asians, African Americans, and those in undereducated or impoverished areas were some of the lowest observed. In addition, African Americans hospitalized with atrial fibrillation had the highest risk of 30-day readmission and 30-day mortality.

Congestive heart failure was typically the third most common reason for hospitalization of Medicare beneficiaries. Some of the best performing quality indicator rates were for inpatient treatment of congestive heart failure. This topic was almost always in one of the top three areas of performance for all groups. A notable exception was performance for those in impoverished neighborhoods, whose quality indicator rates were only one-tenth of the statewide and national rates—by far the lowest of any group studied.

Quality indicator rates for acute myocardial infarction were generally high for all groups, including those in lower socio-economic areas, such as the impoverished, undereducated, largely Hispanic, and dual eligible. Rates were usually close to, or above, national levels. Notable outcomes related to acute myocardial infarction included the lowest rates of hospitalization, 30-day readmission, and long-term mortality among African Americans.

To summarize by race/ethnic group, rates of preventive care services are particularly low for non-Caucasians, where some rates are among the lowest found in the study. African Americans are at higher risk of cancer incidence, late stage diagnosis and mortality, and diabetes complications and mortality. They are also at high risk of not receiving recommended atrial

fibrillation care (along with Asians). Pneumonia and stroke were the most common reasons for hospitalization among all except African Americans. Non-Caucasians also had lower rates of stroke care, while Hispanics had the lowest rates of pneumonia care.

To summarize by socio-economic status, beneficiaries who were dual eligible, or residing in undereducated, impoverished, or largely Hispanic neighborhoods all received lower rates of preventive care services than others who were not in these groups. The gap was especially wide between Caucasians who were part of these socio-economic groups and those who were not. For hospital care, both Caucasians and non-Caucasians in the socio-economic groups were less likely to receive recommended care than those who were not part of these groups.

Specific Findings

Charts to support the following findings can be found in a series of slides located at **www.chcf.org//topics/view.cfm?itemID=20938.**

African Americans:

- Were hospitalized more frequently than California and national averages for all conditions studied;
- Were more likely than California or national averages to be diagnosed with colorectal cancer and to have a late stage diagnosis for both breast and colorectal cancer;
- Had higher mortality rates than the California average for all conditions studied;
- Had worse quality of care than the California average on six out of nine quality indicator categories examined; and
- Socio-economic status was not sufficient to explain the low quality indicator scores for African Americans.

Hispanics:

- Were younger than other racial/ethnic groups studied, with the lowest percent of beneficiaries over 80 years old;
- Had much better than average mortality rates on all conditions studied except diabetes;
- Had better 30-day mortality for all inpatient conditions studied despite being hospitalized more frequently than the California average for AMI, CHF, and pneumonia, and being more likely to be readmitted for CHF and pneumonia;
- Were less likely than average to be diagnosed with breast or colorectal cancer; and
- Received worse quality of care in seven out of nine quality indicators studied.

Asians:

- Were hospitalized less frequently than California and national averages for all conditions studied;
- Were less likely to be diagnosed with colorectal cancer or to have a late-stage cancer diagnosis;
- Had better than average mortality rates for the conditions studied; and
- Received worse than average care on five out of nine quality indicators.

Cancer (Breast and Colorectal):

- Caucasians and African Americans had higher than average cancer mortality rates;
- Only Caucasians received higher than average rates of screening;
- California beneficiaries overall had a lower rate of late stage cancer diagnoses than the nation as a whole;
- Lower socio-economic status was strongly associated with lower rates of cancer screening. This was particularly true among Caucasians where some of the largest differences between low and high socio-economic status (SES) were seen; and
- California's colorectal cancer screening rate was less than half the national rate.

Diabetes:

- African Americans and Hispanics have a much higher incidence of complications and mortality from diabetes. Diabetes is the only condition for which Hispanics have higher than average complications and mortality; and
- California compares favorably with national rates on the diabetes quality indicator across all groups.

Heart Disease and Stroke:

- Beneficiaries statewide were more likely to be hospitalized for stroke than for most other conditions, and to have lower rates of appropriate drugs given at discharge than was seen across the United States;
- Yet stroke care was consistently one of the top three areas of performance among all indicators for beneficiaries of low socio-economic status and, in some instances, it surpassed national rates;
- African American beneficiaries were much more likely to die from stroke than were all other groups in California;

- In some areas, particularly stroke, low socio-economic status actually increased the likelihood that beneficiaries would receive appropriate care when hospitalized;

- Racial differences revealed more variation than SES or geographic factors on cardiovascular quality indicators;

- Performance on the atrial fibrillation indicator for both Asians and African Americans was far below the state average;

- Quality indicator rates for acute myocardial infarction were generally high for all groups, including those in lower socio-economic areas. Rates were usually close to, or exceeded, national levels;

- Notable outcomes related to acute myocardial infarction included the lowest rates of hospitalization, 30-day readmission, and long-term mortality among African Americans; and

- Levels of appropriate treatment of congestive heart failure exceeded national rates.

Pneumonia (Preventive/Outpatient and Inpatient Indicators):

- Pneumonia is the leading cause of death among the elderly; and

- California has notably low rates of immunization for pneumonia and influenza, even in high SES populations, but has generally better than national average inpatient pneumonia care, even in low SES populations.

IV. Conclusions

The findings in this report identify several areas in which quality of care could be improved for Medicare beneficiaries. Increasing the levels of colorectal screening and pneumonia and influenza screening among all populations to at least national averages would likely have a significant positive influence on the mortality from these conditions. Similarly, a concerted effort by hospitals to implement guidelines for atrial fibrillation treatment could reduce deaths and complications from stroke, particularly in the African American population. Other findings in the report suggest areas for further study—notably, the high rates of diabetes among African American and Hispanic beneficiaries, despite generally high quality indicator rates for diabetes overall.

Anyone wishing a complete copy of the CMRI report, including the fill data set, should contact the California HealthCare Foundation at **pubs@chcf.org**.

References

1 Jencks, S.F., et al. "Quality of Medical Care Delivered to Medicare Beneficiaries: A Profile at State and National Levels." *JAMA.* 2000, 284(13): 1670–1676.

2 Asch, S.M., et al. "Measuring Underuse of Necessary Care Among Elderly Medicare Beneficiaries Using Inpatient and Outpatient Claims." *JAMA.* 2000, 284(18): 2325–2333.

3. The full report is available on CD by request to **pubs@chcf.org**.