Policy Implications of Racial and Ethnic Differences in Managed Care vs. Fee-for-Service Utilization Disparities in California

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About the California Pan-Ethnic Health Network
Established in 1992 and incorporated as a 501(c)(3) nonprofit organization in 1998, the California Pan-Ethnic Health Network (CPEHN) has responded to the need for a representative community-driven and community-responsive voice in health care reform efforts in California. Our unique value lies not only who is represented in CPEHN but our ability to foster cross-cultural communication and collaboration to produce a stronger, more proactive health policy agenda.

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Executive Summary

The study, "Policy Implications of Racial and Ethnic Differences in Managed Care vs. Fee-for-Service Utilization Disparities in California," examined differential rates in utilization of services, cancer screening, and chronic disease management in managed care (MC) compared with fee-for-service (FFS) health insurance structures among California's racial and ethnic groups. The project used data from the 2001 California Health Interview Survey to analyze whether utilization by different racial and ethnic groups was higher in managed care than fee-for-service. While it has been demonstrated that enrollees in managed care are more likely to have a usual source of care, due to the requirement that they choose or be assigned to a primary care provider, it is unclear whether or not this translates into greater access to preventive or diagnostic care. The authors set to investigate whether even with a usual source of care, racial and ethnic patients have a difficult time navigating a complex managed care system, a system that requires the consumer to be well informed about their rights and services and to advocate for their own care. This difficulty may consequently result in lower utilization of health care services.

Previous work has shown that rates of various preventive and diagnostic tests are generally higher in managed care than fee-for-service for some racial and ethnic groups. However, generalizations from these studies to the California experience are limited by nationally-representative datasets that have 1) limited samples of racial groups relevant to California (especially Asian subgroups) and 2) that are drawn from surveys conducted only in English.

Summary of Study
Using data from the 2001 California Health Interview Survey (CHIS 2001), we examined disparities between managed care (MC) and fee-for-service (FFS) in populations relevant to California in three general utilization categories; overall utilization of health care services, cancer screening, and chronic disease management. We used five major race/ethnicity categories for our analysis; Latino, African American, Asian and Pacific Islander, American Indian/Native Alaskan, and White.

Summary of Findings
It was our hope that through this analysis, general patterns of utilization among racial and ethnic groups in managed care and fee-for-service would emerge that would enable the state and health plans to focus their attention and resources on eliminating health disparities. A summary of our findings include:
- In general, the differences seen between managed care and fee-for-service are greater in Medi-Cal than in employment-based/private insurance.
- Consistent with other research, most racial/ethnic groups are more likely to have a usual source of care in managed care than fee-for-service.
- However, while those in Medi-Cal/Healthy Families managed care are more likely to have a usual source of care, they are also more likely to report an ER visit.
- Generally, cancer screening rates are higher in employment-based/private insurance than Medi-Cal/Healthy Families and are higher in managed care than in fee-for-service.
- The findings for chronic disease management rates are very mixed. Reported utilization of appropriate disease management is higher in Medi-Cal/Healthy Families than employment-based/private coverage for some conditions. In addition, disease

management rates are generally higher in managed care compared with fee-for-service, but not uniformly so.

- A regression analysis was conducted to identify any unique differences between managed care and fee-for-service for racial/ethnic groups when other socioeconomic factors were held constant. One of the general findings is that being in managed care is associated with greater access across all racial/ethnic groups on having a usual source of care and utilization of cancer screenings.

Summary of Recommendations

Utilization of health care services among racial/ethnic groups in managed care and fee-for-service, and public and private insurance is complex. Our findings demonstrate that the utilization of health care services is mediated both by race/ethnicity and by other socioeconomic factors independent of race. There is evidence that depending on the utilization measure, managed care in California may result in better utilization than fee-for-service plans. However, managed care may also have negative effects on utilization – the difference is determined by who you are and what type of care is being sought. For example, managed care tends to improve cancer screening rates overall. However, Latinos in Medi-Cal/Healthy Families managed care plans have lower cancer screening rates as do AI/ANs in managed care in both Medi-Cal/Healthy Families and employment-based/private insurance.

This study was limited by the utilization measures available. We used highly aggregated measures of health care utilization from CHIS 2001. Measures of having a usual source of care and utilization of cancer screenings and appropriate chronic disease management may have advantaged managed care plans. Managed care plans encourage enrollees to have a regular primary care provider; many plans require it. Managed care plans also tend to actively promote prevention and disease management programs.

In addition, the utilization indicators for this study were process measures which did not provide information on the quality of care provided, nor on health outcomes. While we did see disparities in access along dimensions of language preference and immigration status, whether these vulnerable groups receive higher quality of care or have better health outcomes in managed care than fee-for-service remains an open question.

Due to the rapidly rising health care costs, managed care has also rapidly expanded as a solution to control these costs. However, little analysis has been conducted on how this type of structure will impact consumers, particularly people of color. Additional research and public policies to ensure that communities of color are not negatively impacted by the implementation of managed care is essential. A summary of our recommendations to policy makers are:

- Encourage investigation of health plan characteristics that influence utilization differences among California's racial and ethnic population groups.
- Identify best or promising practices that may begin to reduce the racial/ethnic disparities that exist.
- Require the collection and analysis of race/ethnicity data by all health insurance purchasers.
- Encourage disaggregated data collection, particularly among Asians and Pacific Islanders.

1. Introduction

This study examined differential utilization rates in managed care (MC) vs. fee-for-service (FFS) health insurance structures among California's racial and ethnic groups. Previous work has shown that rates of various preventive and diagnostic tests are generally higher in managed care than fee-for-service for some racial and ethnic groups. In addition, some studies suggest that specific racial and ethnic groups experience greater disparities depending on whether they are in managed care or fee-for-service. However, generalizations from these studies to the California experience are limited by nationally-representative datasets that have 1) limited samples of racial groups relevant to California (especially Asian groups) and 2) that are drawn from surveys conducted only in English.

This issue is very relevant to California state policy, especially given the further diffusion of managed care practices to "control costs". Within the last five years the majority of Medi-Cal recipients, an extremely diverse population, have been required to participate in a managed care health plan. However, it has not been shown that this approach is appropriate for people of color. Different health care delivery systems may require consumers to be more sophisticated and knowledgeable about navigating the health care system and advocating for their health care services. Such difficulties may contribute to the growing racial and ethnic disparities between and within populations. For example, cultural and linguistic barriers may prevent them from fully understanding and utilizing their health care benefits.

Using the California Health Interview Survey (CHIS 2001), we examined differences in utilization patterns among managed care and fee-for-service enrollees in populations relevant to California. The first round of CHIS 2001, conducted in English, Spanish, Cantonese, Mandarin, Korean, Vietnamese, and Khmer (Cambodian language) provides the population-based data needed to measure differences in access between managed care and fee-for-service among randomly selected English speakers and non-English speakers. The oversample in specific ethnic populations also enabled us to identify disparities among and between different racial and ethnic groups.

2. California Health Interview Survey 2001 and Analytic Methods

The 2001 California Health Interview Survey, conducted by the UCLA Center for Health Policy Research, is a geographically stratified random-digit-dial (RDD) population-based survey, which reached 55,000 households. What makes this survey particularly unique is the implementation of the survey in six languages; English, Spanish, Chinese (Cantonese and Mandarin dialects), Korean, Vietnamese, and Khmer (Cambodian). In addition, to achieve adequate estimates within Asian subgroups, CHIS 2001 oversampled in five specific Asian subgroups; Koreans, Vietnamese, Cambodians, South Asians, and Japanese using surname lists. The American Indian/Alaska Native population was also oversampled using Indian Health Services Administrative files and community outreach efforts. California's population is 32.4% Latino, making it well represented in the RDD sample. Latino respondents were asked their ancestry, such as Mexican, Salvadoran, Guatemalan, Honduran, Costa Rican, etc. Complete descriptions of the CHIS 2001 samples and methods are available at www.chis.ucla.edu.

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CHIS 2001 provided us with population-based data needed to measure differences in access between managed care and fee-for-service among both different racial and ethnic groups and also English and non-English speakers.

Analytic Methods
The population for this study is adults between the ages of 18 and 64 in California. We focused on the non-elderly population because nearly all those over 65 are covered by Medicare. Adults younger than 65 who are covered by Medicare are also excluded. In addition, women who reported being pregnant at the time of the CHIS interview are not included because their insurance status and use of services is not representative of otherwise similar women. [1]

Because our study focused on the differences between managed care and fee-for-service, it only covers those who were insured at the time of the survey. This had an important impact on the study as the majority of the uninsured are a racial and ethnic minority and have very different utilization patterns as a result of their insurance status. Types of health insurance included in this study were: Medi-Cal/Healthy Families (California's Medicaid and SCHIP, respectively), employment-based, and privately purchased plans. Other public plans were not included in the analysis since we were interested in explicit examinations of Medi-Cal/Healthy Families; inclusion of the multiple insurance plans aggregated in the CHIS definition of "other public plans" would not have improved the clarity.

The general outcome measures in this study were: 1) overall health care utilization measures; 2) cancer screening tests; and 3) use of disease management for those with chronic conditions. The relevant CHIS variables or indicators used to construct these measures, and the study sample are identified in Table 1.

Table 1. Study Outcome Measures

Measure	Sample
Overall Health Resource Utilization	
Usual source of care	All 18-64 year olds
Visited a doctor in last year	All 18-64 year olds
ER visit in past year	All 18-64 year olds
Cancer Screening	
Pap test in past 3 years	Women 18-64
Mammogram in past 2 yrs	Women 40-64
Endoscopy in past 5 yrs	All 50-64
Fecal Occult Blood Test in past 1 yr	All 50-64
Prostate Cancer (PSA) test in past year	Men 55-64
Chronic Disease Management	
Diabetes/medications, blood sugar check, hemoglobin A1C if diagnosed	Adults reporting Diabetes 18-64
Heart disease/cholesterol check, taking aspirin if diagnosed	Adults reporting Heart Disease 18-64
Hypertension/taking aspirin, cholesterol check if diagnosed	Adults reporting Hypertension 18-64

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[1] Comparisons, in Appendix A, were made to the standard California population description available from the California Dept. of Finance, Demographic Research Unit: www.dof.ca.gov/html/Demograp/druhpar.htm.

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Aggregate measures for cancer screening and chronic disease management were also created. Respondents were included in the aggregate measures if they were eligible for at least one of the individual measures listed in Table 1; for example, a 40 year old female is eligible for both Pap tests and Mammograms. Respondents were assigned a "success," or a numeric value of 1, if they had a success on each of the individual measures for which they were eligible. Continuing with the example, a 40 year old female will be assigned a success for aggregate cancer screening if they have received appropriate Pap tests *and* Mammograms.

Independent Variables

Health Insurance Type

The constructed variable in the Public Use File (PUF) for health insurance coverage (INS_l64_P) was used as the primary indicator for type of health insurance in this study. For those with Medi-Cal/Healthy Families, employment-based insurance, or privately purchased insurance, the type of insurance structure, managed care vs. fee-for-service, was determined from the type of restrictions reported by the respondent (A121, A122, A123).

Race/ethnicity

The CHIS 2001 PUF provides RACEHPRA, a constructed race variable with 7 mutually exclusive race/ethnicity categories: White, Latino, Asian, Black or African American, American Indian/Alaska Native, Native Hawaiian or other Pacific Islander, and Other/Multiracial. A considerable amount of tabulation and reassignment has already occurred in the construct of RACEHPRA, principally in the use of the "most identify" question. For this analysis, in addition to RACEHPRA, we investigated the effect of respondents' "mostly identifying" with a racial/ethnic group. While the multiracial population of the sample is relatively low (4.7%), the Latino sample in CHIS provides a robust sample to determine health status, health access and health utilization differences between Latinos who most identify with being "Latino" and those who identify primarily as White.

Language

CHIS 2001 collects information on languages spoken at home and asks for a self-assessment of English proficiency for those who report speaking languages other than English at home. We constructed a variable that identifies language as: bilingual, monolingual English, and monolingual non-English. We also constructed a limited English proficiency variable (LEP) where a person is deemed LEP if they report that they speak English "not well" or "not at all".

Immigration status

The variable status native/immigrant had values for a) born outside the U.S. and b) native-born regardless of the parents birthplace. Age at immigration and proportion of life lived in the U.S. were also analyzed. However, they added little or no additional information to the simple definition of native/immigrant.

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Other Socioeconomic Status
Other variables for socioeconomic status are indicated in Table 2.

Table 2. Additional Socioeconomic Status Variables

Variable	Definition	CHIS PUF variable name
Age	Self-reported age	SRAGE
Gender	Self-reported gender	SRSEX
Educational attainment	Categories based on highest grade/degree completed	AHEDUC
Income	Household income as a percentage of the federal poverty level	POVLL
Household size	Number of people living in household	HH_SIZE
Labor force status	Status during the past week: working, with a job but not working, looking for work, not in labor force	AK1
Rural/urban	Urban, rural, as defined by Office of Rural Health	UR_RHP1

Health status
This component of the model is represented by the Medical Outcomes Study General Health questions (AB1). Body mass index (BMI) is also included in multivariate analyses because it has been shown to be a powerful predictor of health status.

Statistical Analysis

Survey Weights and Sample Design Adjustments
Our analyses of the Asian and American Indian/Alaskan Native oversamples were both weighted and unweighted. Analyses of the RDD portion of CHIS 2001 used the weighted information provided in the PUF to address the design effect of the CHIS multi-stage sampling (first by county/county-group stratum, then by household with telephones). We explored the use of weighted analysis in multivariate modeling of racial/ethnic disparities in California managed care.

Univariate and Bivariate Analysis
For our utilization outcome variables and their set of predictors, we calculated frequencies for categorical variables, and means, standard deviations, and ranges for continuous variables. Two-way contingency tables estimate the association of utilization with race/ethnicity in managed care (MC) vs. fee-for-service (FFS). These associations were examined for the major racial groups, as well as for the larger Latino and Asian subgroups. Frequency tables were also generated for the demographic and socioeconomic status variables by race/ethnicity. The distribution of language- and immigration-related variables by race/ethnicity was also examined. Larger "drill-down" contingency tables were generated that examined MC and FFS utilization rates within the racial/ethnic groups by gender, income categories, language, immigration status and urban/rural area. This set of analyses is possible only with CHIS and distinguish this project from previous studies

that have limited information on major racial/ethnic groups, especially Asians and American Indians/Alaska Natives, and no language or immigration information on ethnic subgroups.

3. Results

The CHIS 2001 sample, including the RDD and list-sampled Asian oversample were used in this study. This sample is generally comparable to the year 2001 Department of Finance data for the population of California (Appendix A), but there is evidence that the CHIS 2001 sample includes slightly older, more educated, and wealthy Californians that the general population.

Overall insurance coverage rates are listed in Table 3. Significant disparities exist in overall access to care. This observation is well-documented and explored in detail by many other studies. We examined the more subtle issue of how health plan type – managed care (MC) vs. fee-for-service (FFS) – affects utilization of health care *among those that are insured*. These disparities exist within the greater context of differences in insurance coverage highlighted in Table 3. In this study, we analyzed only those with Medi-Cal/Healthy Families, employment-based, and privately purchased health insurance as noted in bold below. The sample sizes of insured individuals in certain racial/ethnic groups are relatively small. For example, there are only 126 insured American Indian/Alaska Native respondents. When such small samples are further sub-divided into those eligible for chronic disease management, statistically valid inferences become difficult to draw.

Table 3. Insurance Status at Time of Interview Adults Age 18-64 by Race/Ethnicity

Race/Ethnicity		Uninsured	Medi-Cal/Healthy Families	Employ	Private	Other Pub	Total
			Insurance Coverage				
Latino	n	4,192	**1,913**	**5,475**	**281**	127	11,988
	%	35.0	**16.0**	**45.7**	**2.4**	1.1	100
AI/AN	n	39	**29**	**89**	**8**	2	167
	%	23.3	**17.7**	**53.5**	**4.6**	1.0	100
Asian/Pacific Islander	n	1,334	**801**	**4,765**	**596**	73	7,568
	%	17.6	**10.6**	**63.0**	**7.9**	1.0	100
African American	n	335	**536**	**1627**	**62**	64	2,624
	%	12.8	**20.4**	**62.0**	**2.4**	2.4	100
White	n	2,494	**1,500**	**17,135**	**2,102**	335	23,565
	%	10.6	**6.4**	**72.7**	**8.9**	1.4	100
Other	N	273	**180**	**922**	**109**	36	1,520
	%	18.0	**11.8**	**60.7**	**7.2**	2.3	100
Total	N	8,667	**4,959**	**30,013**	**3,158**	636	47,433
	%	18.3	**10.5**	**63.3**	**6.7**	1.3	100

Source: CHIS 2001 RDD + Asian oversample files

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To enhance sample size, participants with employment-based insurance and privately purchased insurance were combined in this analysis. This was possible due to similarities between these groups in terms of demographics and utilization patterns. The racial/ethnic distribution of insurance coverage in the final sample used in our analyses is identified in Table 4.

Table 4. Health Insurance Type by Race/Ethnicity, Insured Adults 18-64

	Insurance Coverage	
Race/Ethnicity	Medi-Cal/Healthy Families	Employ/Private
Latino	24.9	75.1
AI/AN	23.3	76.7
Asian/Pacific Islander	13.0	87.0
African American	24.1	75.9
White	7.2	92.8
Other	14.8	85.2
Total	**13.0**	**87.0**

Design-based: F(4.38, 172842.87)=192.6027 P=0.0000
Source: CHIS 2001 RDD + Asian oversample files

Overall Utilization

Results on the utilization differences between those in managed care (MC) versus fee-for-service (FFS) are reported in Table 5 and Figure 1. Table 5 lists the proportion of insured respondents that report having a usual source of care (USOC). Overall, USOC rates range from Latinos with 85% to African Americans with 93%. In Medi-Cal/Healthy Families, there are substantial difference in USOC rates between fee-for-service and managed care. On average, USOC rates in FFS plans are about 18% lower than in MC. In employment-based/private coverage, the difference is 9%. Latinos, and to a somewhat lesser degree Asian/Pacific Islanders, are most negatively impacted by FFS in Medi-Cal/Healthy Families. Latinos, AI/ANs, and APIs experience differences in employment-based/private coverage.

Table 5. Usual source of care by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	85.3	65.4	89.0***	83.4	92.4***
AI/AN	89.1	79.8	94.2**	78.4	95.8***
Asian/Pacific Islander	88.3	75.3	94.1***	83.4	92.4***
African American	92.7	84.0	92.8***	90.5	95.9***
White	89.9	82.4	92.9***	84.6	93.6***
Other	89.7	73.5	80.4	90.6	92.7
Total	**88.9**	**73.6**	**91.5***	**84.6**	**93.3***

*p<0.10; ** p<0,05; *** p<0.01

Figure 1. Usual source of care by Race/Ethnicity and MC/FFS
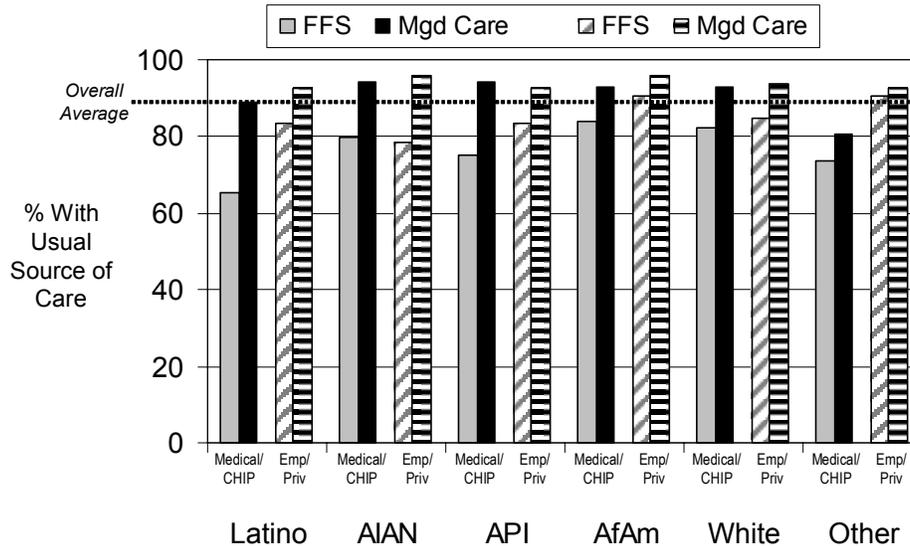
Source: CHIS 2001 RDD + Asian oversample files

Our findings indicate that most racial/ethnic groups are less likely to have a USOC in fee-for-service than in managed care, however the impact is greatest among the Latinos, AI/AN, and APIs. These results are true when the information is broken out by language and immigration status. Figures 2 and 3 present similar information (data shown in Tables B1 and B2, Appendix B), broken out by language and immigrant status. Figure 2 shows that LEP individuals, regardless of race/ethnicity, experience USOC rates in Medi-Cal/Healthy Families fee-for-service that are about 24% lower than in managed care plans. Other coverage/language combinations also see a negative impact of FFS. Figure 3 echoes this pattern: immigrants in Medi-Cal/Healthy Families fee-for-service experience the lowest rates of USOC.

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Figure 2. Usual source of care by Language and MC/FFS
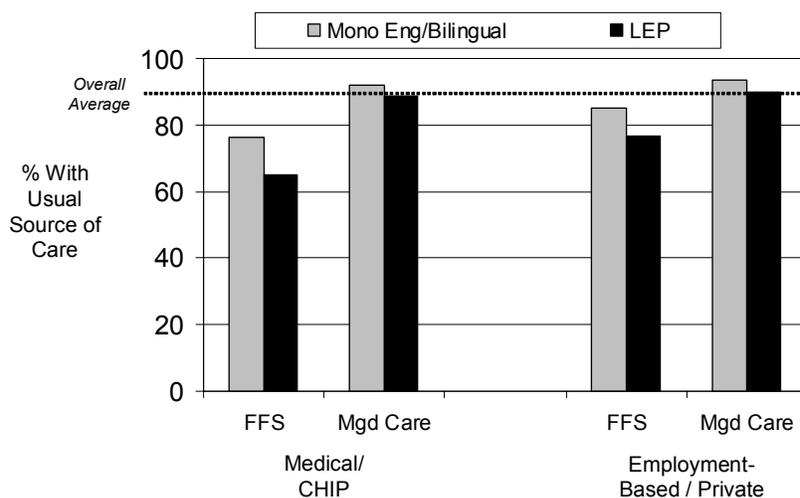
Source: CHIS 2001 RDD + Asian oversample files

Figure 3. Usual source of care by Nativity and MC/FFS
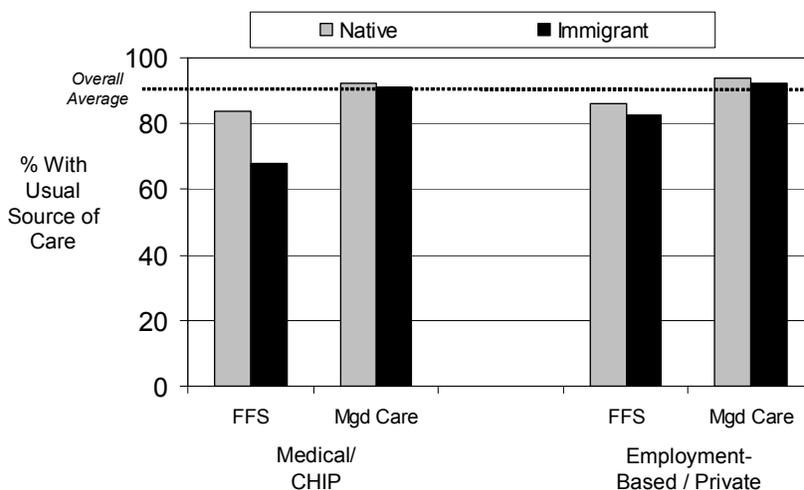
Source: CHIS 2001 RDD + Asian oversample files

Rates of emergency room (ER) visits are often viewed as an indicator of reduced access to regular care. Interestingly, there is a significant difference in ER visits between those in Medi-Cal/Healthy Families compared with people in employment-based/private coverage. Those with employment-based/private coverage are less likely to report an ER visit than those on Medi-Cal/Healthy Families.

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In addition, similar to our findings from above, the utilization differences between fee-for-service and managed care are greater in public programs. However, while those in a Medi-Cal/Healthy Families managed care plan are more likely to have a usual source of care, they are also more likely to report an ER visit. (Table B3, Appendix B)

When reviewing the patterns of physician visits in the past 12 months, the results are similar to our findings with usual source of care. Most racial/ethnic groups have a lower rate of physician visit within the previous 12 months when in fee-for-service compared with managed care. On average, physician visits in FFS are about 9% lower than in managed care. However, the impact is greatest among Latinos, AI/AN, and APIs. In addition, the most substantial difference in physician visits between fee-for-service and managed care are in the Medi-Cal/Healthy Families programs. AI/AN are most negatively impacted by FFS in Medi-Cal/Healthy Families with a difference of nearly 20%. (Table B4, Appendix B)

Cancer Screening

Results on the differences between fee-for-service and managed care for all cancer screenings combined (including Pap smear, mammography, endoscopy/sigmoidoscopy, fecal occult blood test, and prostate specific antigen) are shown in Figure 4. Generally, cancer screening rates are higher in employment-based/private coverage than Med-Cal/Healthy Families and are higher in managed care than in fee-for-service. Among racial/ethnic groups, the biggest disparity is among the Asian and Pacific Islander (API) population. APIs have significantly lower cancer screening rates. This finding is supported by numerous studies. The difference among API's cancer screening rates is exacerbated in public programs and when in fee-for-service as compared with managed care.

Figure 4. Aggregate Cancer Screening by Race/Ethnicity and MC/FFS

Source: CHIS 2001 RDD + Asian oversample files

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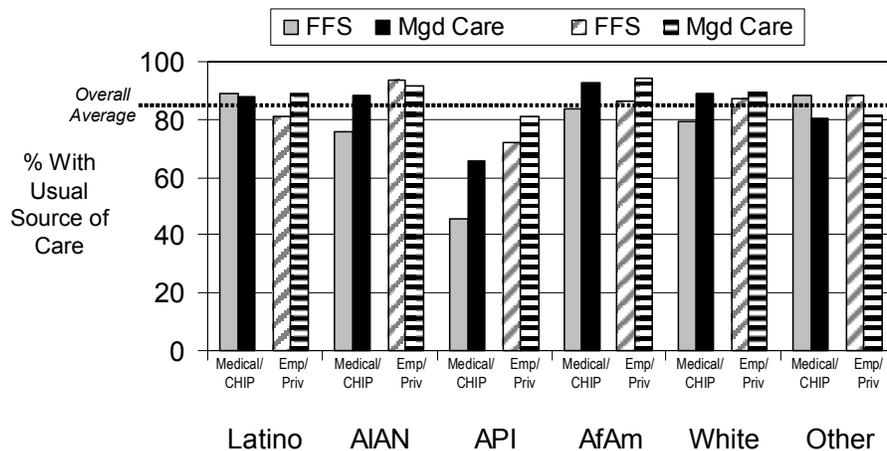
When examining the rates of cancer screening on specific tests and among different racial/ethnic groups, the most significant findings are as follows (tables for these findings can be found in Appendix C):

- Latinos in Medi-Cal/Healthy Families managed care had higher rates in most cancer screenings, except with fecal blood tests and prostate specific antigens (PSAs), where the rates were higher in fee-for-service.
- American Indians/Alaskan Natives (AI/AN) in Medi-Cal/Healthy Families managed care had substantially higher rates in Pap smear, mammogram, and PSA screenings. However, AI/ANs in employer-based/private fee-for-service insurance plans have higher rates of endoscopies/sigmoidoscopies and fecal blood tests.
- As reported above, APIs reported much lower cancer screening rates than other racial/ethnic groups.
- African Americans in Medi-Cal/Healthy Families managed care had lower rates of mammograms and higher rates of sigmoidoscopy and PSA tests, although similar findings are not true for African Americans in employer-based/private insurance.

Chronic Disease Management

Results on the differences between fee-for-service and managed care for all chronic disease management combined (including mellitus, heart disease, and hypertension) are shown in Figure 5. Overall, the findings for chronic disease management rates are very mixed. Reported utilization of appropriate disease management is higher in Medi-Cal/Healthy Families than employment-based/private coverage for some conditions. In addition, disease management rates are generally higher in managed care compared with fee-for-service, but not uniformly so.

Because of the small sample size of each racial/ethnic group in Medi-Cal/Healthy Families and employer-based/private insurance and managed care and fee-for-service, it is very difficult to draw conclusions on specific disease management indicators and racial/ethnic groups. The specific disease management rates among different racial/ethnic groups in managed care and fee-for-service are listed in Appendix D. Generally, the findings were as follows:

- Latinos with Medi-Cal/Healthy Families managed care had higher rates on all chronic disease management measures for diabetes and heart disease and most measures for hypertension. They had comparable rates in employment-based/private managed care.
- AI/AN in Medi-Cal/Healthy Families managed care had substantially higher appropriate chronic disease management rates. Rates in employment-based/private managed care were slightly higher.
- Similar to the findings in cancer screenings, APIs reported much lower chronic disease management rates overall, with very few differences between coverage and plan types.
- African Americans also experienced few differences between coverage and plan types.

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Figure 5. Aggregate Chronic Disease Management by Race/Ethnicity and MC/FFS
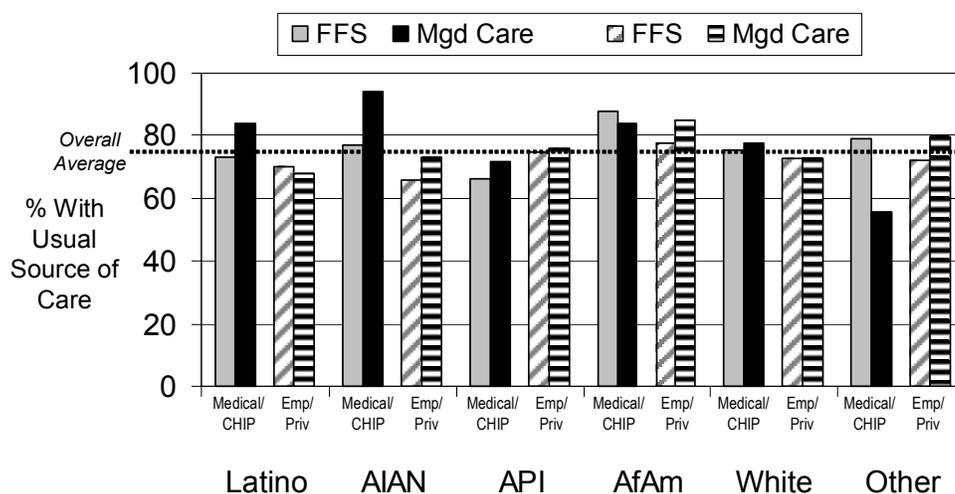
Source: CHIS 2001 RDD + Asian oversample files

Regression Analysis

Due to the complex nature of our study, there were many ways to analyze the data. The regression analysis was designed to identify any unique differences between managed care and fee-for-service on racial/ethnic groups when other socioeconomic factors were held constant. It did not explore other unique impacts of managed care versus fee-for-service, such as language preference and immigration status, that were highlighted above.

The results of the regression analysis are based on the pooled RDD and list sampled Asian oversample of CHIS 2001. As such, they should be viewed as exploratory pending further work on weighting of the Asian oversample. However, as noted at the bottom of the table, Hausman specification tests (in this application, a crude assessment of the validity of this combined analysis) could not reject pooling of the weighted data.

One of the general findings from the regression analysis is that being in managed care is associated with greater access across all racial/ethnic groups on having a usual source of care and utilization of cancer screenings. No independent effect of managed care on the utilization of chronic disease management services was identified. The following results were found among different racial/ethnic groups, controlling for socioeconomic status and type of plan, in comparison to Whites:

MediCal/Healthy Families plans

- Latinos also have higher rates of cancer screenings when in Medi-Cal/Healthy Families than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.

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- Consistent with other studies, APIs have substantially lower rates of cancer screening in both Medi-Cal/Healthy Families and employment-based plans. There are no differences compared with Whites on other utilization measures or types of insurance.
- African Americans also have higher rates of chronic disease management when in Medi-Cal/Healthy Families than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.
- American Indian/Alaskan Native and "Other" racial/ethnic groups have higher rates of cancer screenings when in Medi-Cal/Healthy Families than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.

Employment-based/privately purchased plans:
- Latinos tend to have higher utilization rates of usual source of care in employment-based/private insurance than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.
- Similarly, APIs tend to have higher utilization rates of usual source of care in employment-based/private insurance than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.
- African Americans tend to have higher utilization rates of usual source of care in employment-based/private insurance than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.
- American Indian/Alaskan Native and "Other" racial/ethnic groups have relatively greater utilization rates of usual source of care in employment-based/private insurance than Whites. There are no differences compared with Whites on other utilization measures or types of insurance.

However, considering the interactions of how the type of insurance plan (managed care versus fee-for-service) impacts racial/ethnic populations, independent of other socioeconomic factors, a somewhat different picture emerges:
- Latino gains in increased rates of cancer screenings in Medi-Cal/Healthy Families are offset by much lower rates in managed care. Managed care has no unique effect for Latinos on other measures.
- Among APIs, lower cancer screening rates in employment-based coverage are partially offset in managed care. Managed care has no unique effect for APIs on other measures.
- Cancer screening rates among African Americans with employment-based coverage are higher in managed care. Managed care has no unique effect for African Americans on other measures.
- Higher rates of usual source of care in employment-based coverage and increased rates of cancer screenings in Medi-Cal/Healthy Families among American Indian/Alaskan Natives and "Others" are offset by much lower rates in managed care plans. Managed care has no unique effect for AI/AN and Others on other measures. Cancer screening rates in managed care employment-based coverage is also lower for AI/AN and Others.

According to the regression analysis, other factors associated with lower utilization rates are:
- Those that considered themselves in "fair-poor" health have lower utilization rates in chronic disease management.

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- Those with incomes less than 300% Federal Poverty Level have lower rates of cancer screening and chronic disease management when in employment-based coverage.
- Those with lower education have lower rates of usual source of care and cancer screenings under employment-based coverage, regardless of whether than were in managed care or fee-for-service.
- Those who were unemployed had lower rates of usual source of care in employer-based/private insurance and lower rates of chronic disease management in Medi-Cal/Healthy Families.

In sum, utilization of health care services among racial/ethnic groups in managed care and fee-for-service, and public and private insurance is complex. When other factors were accounted for, managed care was generally associated with higher utilization rates. In addition, when controlling for socioeconomic status, several racial/ethnic groups have higher utilization rates than Whites, with the exception of cancer screenings among Asian and Pacific Islanders. There are also unique interactions between racial/ethnic groups and being in managed care. For example, the increases seen by Latinos and AI/AN and Others on several measures are eroded by managed care.

Scenario Analysis
To further elucidate the multivariate analysis, we developed some scenarios that may help inform the impact and implementation of employer mandate in California. SB 2, charted in 2003, will expand health insurance to approximately 1.1 million uninsured, which includes 432,000 people of color. (CPEHN, *Proposition 72: Insuring Communities of Color*, 2004) Like all health care reform proposals, details of how the plan will be implemented is still being work out, and there is some concern about how it may impact people who are currently enrolled in Medi-Cal and Healthy Families. Not only are the benefits different, currently there are no cultural and linguistic requirements for commercial health plans similar to the ones in Medi-Cal managed care and Healthy Families. We are assuming that enrollees in Medi-Cal fee-for-service, Medi-Cal managed care, and Healthy Families, if covered by their employers or a state purchasing pool as a result of SB 2, would transition into commercial managed care.

These scenarios are based on regression models that are stratified by race/ethnicity and thus avoid any concerns about weighting a pooled sample. For those with a household income below 300% of Federal Poverty Level (FPL), we compared managed care in public programs with commercial managed care by race/ethnicity and language preference. Language preference is particularly important because most of the cultural and linguistic requirements address the issue of language access. It is important to note that the differences may be the result of a more appropriate provider network in Medi-Cal and Healthy Families for communities of color, than in commercial health plans. We were unable account for whether or not their primary care provider belonged to the "safety net" in this exploratory analysis. A summary of the findings are: (Tables for these findings can be found in Appendix E.)
- Among the Asian and Pacific Islander (API) and American Indian and Alaskan Native (AI/AN) Limited English Proficient (LEP) populations, rates of usual source of care are higher in Medi-Cal/Healthy Families managed care than in employer-based/private managed care.

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- However, among African Americans rates of usual source of care are higher in employer-based/private managed care than in Medi-Cal/Healthy Families.
- AI/AN Limited English Proficient enrollees have a higher rate of cancer screenings in employer-based/private managed care than in Medi-Cal/Healthy Families.
- Among Latinos and AI/AN Limited English Proficient populations, rates of chronic disease management are worse in employer-based/private managed care than in Medi-Cal/Healthy Families.

For those with a household income below 300% of FPL, we also compared utilization rates of Medi-Cal fee-for-service to commercial managed care.
- With the exception of AI/AN Limited English Proficient enrollees, all racial/ethnic groups had a higher rate of usual source of care in employer-based/private managed care, regardless of English language proficiency.
- Among APIs and African Americans, the rate of cancer screenings were higher in employer-based/private managed care than in Medi-Cal/Healthy Families managed care. This warrants further research to identify characteristics or situations that will increase the utilization of cancer screenings among Asian and Pacific Islanders.
- Latinos and AI/AN Limited English Proficient enrollees had a higher rate of appropriate chronic disease management in Medi-Cal/Healthy Families managed care than in employer-based/private managed care.

While our findings are preliminary, there appears to be a pattern that some communities of color in Medi-Cal/Healthy Families managed care have better utilization rates for chronic disease management than in employment-based/private insurance and to a lesser extent for Usual Source of Care. Our findings indicate that this is especially true among those that are Limited English Proficient. This has strong policy implications. While expanding employment-based/private insurance is a critical step in insuring more Californians, further examination into characteristics of Medi-Cal/Healthy Families managed care need to be conducted to determine if there are structures and requirements in place that are more conducive to communities of color accessing care. For example, the majority of Medi-Cal and Healthy Families enrollees may seek care at from a "safety net" provider, which may provide more culturally and linguistically appropriate services than a private provider. In addition, Medi-Cal/Healthy Families managed care currently has strong cultural and linguistic requirements that may encourage more appropriate utilization of services among communities of color.

Discussion of Results

Utilization of health care is mediated both by race/ethnicity and by other socio-demographic factors independent of race. There is evidence that depending on the utilization measure, managed care in California can offer higher utilization rates, but it may also have negative impacts: the difference is determined by who you are and what type of care is being sought. For example, managed care tends to improve cancer screening rates overall. However, Latinos in Medi-Cal/Healthy Families managed care have lower cancer screening rates as do AI/ANs in managed care in both Medi-Cal/Healthy Families and employment-based insurance.

In California, as in the rest of the nation, the utilization of many aspects of health care differs between managed care and fee-for-service. While it has been demonstrated that enrollees in

managed care are more likely to have a usual source of care, due to the requirement that they choose or be assigned to a primary care provider, it is unclear whether or not this translates into better preventive or diagnostic care. The RAND Health Insurance Experiment showed that, in a largely non-Hispanic Whites (NHW) population in the 1970s, managed care organizations may have financial incentives to provide relatively more preventive and diagnostic care than FFS plans.[1]

However, while this experience holds true within population subgroups we have shown disparities across racial and ethnic groups due to differences in managed care compared with fee-for-service. Our results add substantially to what is known about the impact of health plan structure on health care access among minority populations by expanding upon the racial/ethnic groups that have been studies. Previous studies have also shown that, for those with insurance, racial and ethnic minorities have substantially different experiences in MC vs. FFS than do non-Hispanic Whites.

Phillips et al.[2] demonstrated these disparities using the 1996 Medical Expenditure Panel Survey (MEPS). Overall, racial and ethnic minorities reported more barriers to care than did NHWs. Looking at reported barrier differentials between MC and FFS, African Americans reported few differences in MC versus FFS. The one exception was having a USOC which demonstrated that although rates for having a USOC increase for African Americans in managed care compared to those in fee-for-service, the disparity between African Americans and Whites with a USOC still exist in managed care. Hispanics reported comparable problems with USOC, but at higher rates than African Americans. Our results build on those of the Phillips study by including larger samples of APIs and AI/ANs and more clearly identifying the barriers faced by these groups.

Two other studies have used the 1996 MEPS to explore utilization rates of specific medical procedures between MC and FFS. DeLaet et al.[3] compared utilization of preventive services among privately insured African Americans, Hispanics, and NHWs in MC vs. FFS. For these groups, our results are consistent with the previous studies: utilization rates were higher in managed care than fee-for-service for physical exams, blood pressure checks, and Pap smear tests for both Hispanics and NHWs while African Americans reported no significant differences between MC and FFS. The DeLaet et al. study did not examine APIs or AI/ANs. Looking at preventive care, Haas et al.[4] found similar trends to DeLaet for examined differential use of preventive care in MC vs. FFS for NHWs, African Americans, Hispanics. For APIs, they found lower rates of mammography, breast exams, and Pap smears in managed care organizations but these trends were not non-statistically significant due in part to the low numbers of APIs in their study sample.

This study has several limitations. First, we used the CHIS 2001 Asian oversample to improve estimates within this population. Sampling weights were not specifically developed for the oversample. We used raked weights for the sample to adjust our analyses. Nonetheless, comparisons of utilization rates across race/ethnicity groups are not comparable in a strict statistical sense; comparisons within groups are valid. The differentials we have found, however, are generally consistent regardless of the outcome measure used. These trends merit further investigation. Analyses similar to those reported here would benefit from the development of sampling weights for the Asian oversample in CHIS 2001 and subsequent CHIS surveys. Secondly, this study is limited by the utilization measures available. CHIS 2001

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provides aggregated measures of access to care. The indicators of utilization of care and types of screening and disease management services measure whether respondents received care. Measures of having a usual source of care, and utilization of cancer screening and chronic disease treatments and monitoring may advantage managed care plans. Managed care plans encourage enrollees to have a regular primary care provider; many plans require it. While enrollees may not avail themselves of this, there are clear differences in the incentives and requirements for having a USOC between managed care and traditional indemnity plans. Similarly, managed care plans have programs and incentives in place with both providers and enrollees to encourage screening and chronic disease management. These are seen as both improving the quality of care and reducing costs. By their structure, implementation of such incentives in FFS plans is more difficult and less widespread. Finally, the aggregate outcomes available for this study measure only utilization – they are not able to measure the quality of care provided. While we did see differentials in access along dimensions of nativity and language preference, whether these vulnerable groups receive higher quality care in managed care remains an open question. Aggregate indicators of utilization cannot reveal whether that care was of adequate objective quality, whether the care was satisfactory to persons seeking care, nor that the care was culturally competent. Linking data from CHIS to patient satisfaction and physiological outcomes data would be very illuminating for these issues. Finally, it was beyond the scope of this exploratory study to stratify the analysis by site of care. Many persons of color in managed care plans tend to obtain care from community health centers. These clinics may be able to provide care that is more culturally and linguistically competent. To the extent that this holds, this would tend to increase utilization rates in ways not adequately accounted for in our analysis.

4. Policy Implications

The difference between managed care and fee-for-service, particularly among specific populations, is a critical issue and has many implications for California state policy. California has become a state where racial and ethnic "minorities" now make up the majority of the population. In addition, there continues to be a diffusion of managed care practices to control the rapidly rising costs of health care. Within the last five years the majority of Medi-Cal recipients, an extremely diverse population, have been required to participate in a managed care health plan. However, it has not been shown that this approach is appropriate for people of color. Different care systems may require consumers to be more sophisticated and knowledgeable about navigating the health care system and advocating for their health care services. Such difficulties may contribute to the growing racial and ethnic disparities between and within populations. For example, cultural and linguistic barriers may prevent them from fully understanding and utilizing their health care benefits.

Our study generally supports the previous research that has been done in comparing managed care and fee-for-service. Managed care seems to have an important role in the appropriate utilization of health care services. However, this does not mean the expansion of managed care will be the solution to addressing health disparities, nor should the research end here. Within the general findings that shows managed care has a positive impact, there are many disparities within and between racial/ethnic populations among Medi-Cal/Healthy Families and employment-based/private insurance and the managed care and fee-for-service structure, particularly in the utilization of chronic disease management. As a result, it is critical that policy

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makers begin to focus their attention and resources on identifying and eliminating existing racial/ethnic health disparities. To this end, we have the following recommendations:

- Encourage further study of health plan characteristics that influence health care utilization among California's racial and ethnic population groups. While we found that utilization rates are overall higher in managed care plans, American Indian/Alaska Natives and Latinos in managed care plans experience relatively lower cancer screening rates. Conversely, APIs and African Americans have relatively higher cancer screening rates in employment-based managed care plans. Understanding why these groups experience different levels of access could help improve care for all groups.

- Identify best or promising practices that may begin to reduce the racial/ethnic disparities that exist. For example, a plethora research has shown that Asian and Pacific Islanders do not utilize cancer screenings appropriately. However, our study demonstrated that APIs with employment-based private insurance had higher rates of cancer screenings. Additional research should be conducted to determine the characteristics or situations that promote the increased rate of cancer screenings among APIs.

- Require the collection and analysis of race/ethnicity data by all health insurance purchasers. Clearly without racial/ethnic data, we cannot given begin to identify health disparities let alone address them. In addition, health plans a considerable rich source of utilization and health outcome data that we can begin "mining" to identify patterns of care and high-risk populations that need special attention. It is imperative that we begin holding health plans and health insurance purchasers accountable for participating in addressing the issue of health disparities.

- Encourage the disaggregation of data, especially among Asians and Pacific Islanders. Numerous studies have indicated that combining Asian and Pacific Islanders into one major ethnic group "masks" the enormous differences between the two groups. We will never have adequate data to identify and address health disparities if we do not begin to analyze Asian and Pacific Islanders as separate and distinct populations. It was our hope to address this issue however, similar to other studies, the two populations were too small to analyze separately, even with the CHIS oversample.

Never has there been a more critical and opportune time for policy makers to make health disparities a priority. By identifying the populations in greatest need, we will be able to target the ever shrinking health care resources to areas that will make the biggest difference.

APPENDIX A

Comparison of CHIS 2001 Weighted Oversample to California Department of Finance Population Data

Table A1. Gender (% Female)

	CHIS	DoF
White	50	50.5
Latino	49.5	50.1
API	50	53.3
Af Am	55.3	50.0
AI/AN	45.7	
Other	52	
Total	50.2	50.6

Table A2. Age (%)

Race/Ethnicity	Source	Age Group		
		18-34	35-49	50-64
White	CHIS	32.5	39.4	28.2
	DOF	34.9	39.3	25.8
Latino	CHIS	55.8	32.5	11.7
	DOF	50.5	34.0	15.6
API	CHIS	44.6	36.2	19.3
	DOF	41.2	39.8	18.9
Af Am	CHIS	38.1	38.8	23.1
	DOF	38.1	44.7	17.2
AI/AN	CHIS	37.9	36.4	25.7
	DOF	Na		
Other	CHIS	48.2	35.2	16.6
	DOF	Na		
Total	CHIS	41.1	37.0	21.9
	DOF	40.5	38.2	21.3

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Table A3. Education (%)

Race/Ethnicity	Source	Gr 1-11	HS Dipl	~Coll/Voc	BA/BS	Any Grad
White	CHIS	4.7	24.6	30.7	24.2	15.8
White	DoF	7.2	23.9	32.4	23.4	13.0
Latino	CHIS	42.3	29.6	19.5	6.4	2.4
Latino	DoF	48.0	25.2	18.7	6.1	2.1
API	CHIS	8.4	21.2	20.1	32.7	17.6
API	DoF	13.1	19.3	20.8	35.3	11.6
Af Am	CHIS	6.1	28.7	39.1	16.8	9.3
Af Am	DoF	11.4	32.5	38.0	14.1	4.0
AI/AN	CHIS	17.9	31.9	35.0	9.0	6.1
AI/AN	DoF	Na	Na	na	na	Na
Other	CHIS	15.6	24.8	33.1	17.6	8.8
Other	DoF	Na	Na	na	na	na
Total	CHIS	15.3	25.5	26.7	20.4	12.1
Total	DoF (w/ AIAN + Other)	18.9	24.4	27.7	19.6	9.4

Table A4. Income (%)

	CHIS Category	0-10000	10001-20k	20001-40k	40001-80k	>80001
	DoF Category	0-9999	10000-19999	20-39999	40-74999	75000+
Race/Ethnicity	**Source**					
White	CHIS	4.3	7.7	18.1	34.4	35.5
White	DoF	3.2	7.5	19.0	27.3	42.9
Latino	CHIS	12.9	30.3	31.2	18.0	7.7
Hispanic	DoF	6.9	16.0	32.7	29.5	14.9
API	CHIS	7.1	11.8	20.3	29.7	31.1
API	DoF	6.2	8.1	16.5	29.0	40.1
Af Am	CHIS	11.2	16.1	25.9	28.4	18.5
Black	DoF	3.8	16.4	28.2	27.7	24.1
AI/AN	CHIS	8.6	21.1	24.2	28.7	17.4
	DoF					
Other	CHIS	7.3	14.2	23.9	34.6	20.2
Other	DoF					
Total	CHIS	7.4	14.8	22.4	29.2	26.3
Total	DoF	4.7	10.7	23.3	28.2	33.1

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Appendix B

Overall Utilization Detailed Results Tables

Table B1. Usual source of care by Language and MC/FFS

Language	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Mono Eng/Biling	89.6	76.3	91.9***	85.2	93.5***
LEP	79.7	65.0	88.7***	76.9	90.0***
Total	**89.0**	**73.5**	**91.4***	**84.8**	**93.4***

Table B2. Usual source of care by Nativity and MC/FFS

Nativity	Overall	Medi-Cal /CHIP		Employ/Private	
		FFS	MC	FFS	MC
Native	90.7	83.7	92.2***	86.3	93.9***
Immigrant	86.6	67.7	90.9***	82.5	92.4***
Total	**88.9**	**73.7**	**91.5***	**84.6**	**93.3***

Table B3. ER visits by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	15.2	18.4	28.5***	13.2	12.6
AI/AN	25.7	27.6	45.5*	23.2	21.4
API	9.7	12.7	16.9	7.6	9.9*
African American	22.0	41.8	36.2	16.5	16.9
White	15.0	27.7	32.2*	13.4	14.1
Other	17.9	33.7	22.8	14.7	17.1
Total	**14.7**	**23.1**	**28.2***	**12.6**	**13.4**

Table B4. Physician visits by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	81.6	77.6	90.4***	76.6	84.3***
AI/AN	89.7	77.7	97.0***	87.3	91.7
API	80.8	76.5	87.7**	75.8	83.9***
African American	90.2	91.2	95.4*	84.8	91.6***
White	86.1	88.1	93.3***	83.8	86.9***
Other	87.4	90.1	81.2	83.3	90.4***
Total	**84.8**	**82.4**	**91.4***	**81.5**	**86.5***

* p<0.10; ** p<0,05; *** p<0.01

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Appendix C

Cancer Screenings Detailed Results Tables

Table C1. Cancer Screenings combined by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	86.7	88.8	88.0	81.2	88.8***
AI/AN	90.1	75.9	88.5*	93.7	91.4
API	74.6	45.7	65.5***	72.0	81.0***
African American	90.8	83.8	92.4***	86.5	94.4***
White	88.2	79.5	89.1***	87.3	89.3***
Other	84.1	88.5	80.2	88.3	81.3***
Total	**85.9**	**80.7**	**84.5**	**83.9**	**88.0***

Table C2. Pap Smears by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	89.9	91.2	91.0	85.5	91.5***
AI/AN	92.2	79.9	96.4**	85.1	96.4***
API	76	45	58.9**	74.6	82.6***
African American	91.5	87.8	91.5	88.8	94.1***
White	90.3	80.3	88.1***	89.7	91.6***
Other	85.6	86.8	81.7	92	82.2***
Total	**87.9**	**83.2**	**84.4**	**86.5**	**90.1***

Table C3. Mammograms by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	75.3	66.7	75.8**	72.8	78.9**
AI/AN	77.6	52.6	90.2***	65.6	84.1**
API	72.1	66.2	72.6	71.6	72.7
African American	78.9	79.2	72.3	74.9	82.3**
White	80	67.7	77.3***	80.2	80.9
Other	72.8	60.7	82.3*	75.5	71.3
Total	**78**	**68.5**	**75.6**	**77.8**	**79.3**

Table C4. Sigmoidoscopies by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	34.4	29.5	33.8	27.5	40.2***
AI/AN	37.5	54.1	53.5	47.0	26.7**
API	35.2	25.4	37.8*	28.4	40.1***
African American	45.8	33.5	43.4	42	50.7
White	42.7	35.2	45.0***	42.3	43.3
Other	44.5	42.3	56.4	35.5	47.9*
Total	**41**	**32.4**	**41.1**	**39.1**	**43.1**

* p<0.10; ** p<0,05; *** p<0.01

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Table C5. Fecal Blood Tests by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	49.1	65.7	51.8	53.3	45.2
AI/AN	62	54.4	61.8	67.6	59.3
API	72.5	53.9	64	69.6	77.2
African American	59.2	66.1	70.2	49.1	59.9
White	65.3	34.3	59.9***	65.7	66.8
Other	65.9	28.3	41.2	72.4	72.6
Total	**64.6**	**45.7**	**60.0***	**64.8**	**66.2**

Table C6. Prostate-Specific Antigen Tests by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	53.4	58.6	45.2	54.6	52.9
AI/AN	58.2	22.4	73.6*	56.8	60.8
API	52.6	23.9	32.8	43.5	63.6***
African American	73.5	66.8	95.4*	58.1	74.3*
White	66.5	54	65.2	68.3	65.8
Other	60	100	36.4	55.5	61.2
Total	**64**	**50.6**	**61.2**	**64.4**	**64.8**

*p<0.10; ** p<0,05; *** p<0.01*

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Appendix D

Chronic Disease Management Detailed Results Tables

Table D1. Chronic Disease Management Combined by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	71.8	73.3	83.7***	69.8	68.1
AI/AN	76.7	77.2	94.2**	65.6	73.5
API	74.6	66.1	71.4	74.7	76.1
African American	83.9	87.7	84.2	77.7	85.0*
White	73.2	75.2	77.5	72.6	72.8
Other	75.2	79	55.5*	72.2	79.9
Total	74.1	75.8	78.7	72.7	73.8

Table D2. Diabetes Medication by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	70.8	62.8	86.1	74.4	66.3
AI/AN	79.6	53.8	82.8	90	85.3
API	77.6	68.3	66.3	73.7	84.1
African American	78.5	87.6	68.9	87.1	77.6
White	76.7	79.7	81.1	74.6	76.4
Other	64.2	56.4	67.1	51.7	69.7
Total	75.1	71.9	77.6	74.8	75.3

Table D3. Diabetes Blood Check by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	74.2	70.5	85.6	74.7	71.2
AI/AN	96.8	90.5	100	100	95.7
API	83.8	58.7	90.9	86.8	83.5
African American	88.9	86.1	87.6	86.3	91.5
White	82.3	85.1	84.4	83.1	81
Other	76.5	83.5	54	76.6	78.8
Total	81	77.5	85.7	81.4	80.3

* p<0.10; ** p<0,05; *** p<0.01

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Table D4. Diabetes Hb-A1c by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	76	63.3	77.9	75.9	81.4
AI/AN	89.7	70.9	100	86.8	95
API	83.6	65	56.2	92.9	90.7
African American	84.5	82.9	86.7	66.4	90.8
White	82.2	70.4	78.8	83	84.6
Other	73.2	57.3	75.9	52.7	83.3
Total	80.8	68.1	76.7	80.3	85.4

Table D5. Heart Disease Medications by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	39.8	44.8	61.2	31.5	31.8
AI/AN	49.4	66.6	61.9	37.6	36.1
API	47.9	66.1	71.7	41.6	35.6
African American	61	64.1	63.8	60.4	52.9
White	52.2	62.4	63.9	47.6	51.4
Other	34.4	62.3	50.7	15.8	37.7
Total	50.3	58.1	64.9	44.8	46.7

Table D6. Heart Disease Blood Pressure Check by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	33.8	27.7	31.5	26.9	41.9
AI/AN	37.7	24.4	48.2	34.2	39
API	26.7	8.5	15.7	33.3	31.2
African American	22.9	22.3	15.9	12.3	40.5
White	42.8	36.2	32	47	43.3
Other	19.2	4.9	11.2	18.7	25.9
Total	37.1	28.5	24.9	40.9	41

* p<0.10; ** p<0,05; *** p<0.01

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Table D7. Hypertension medications by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	52.3	55.4	69.5	44.9	48.5
AI/AN	52.4	57.1	46.2	56.6	51.6
API	68.3	91	93.7	60.3	66.2
African American	73.6	84.1	73.8	68	72.4
White	64.1	78.3	74.1	61.8	62.9
Other	55.6	32.9	56.2	59.5	58
Total	63.3	70.5	74.3	59.5	62.1

Table D8. Hypertension Blood Pressure Check by Race/Ethnicity and MC/FFS

Race/Ethnicity	Overall	Medi-Cal/Healthy Families		Employ/Private	
		FFS	MC	FFS	MC
Latino	74.7	82.2	82.1	72.6	69.8
AI/AN	67.6	67.5	84.7	53.6	67.4
API	79.3	76.6	87.9	73.7	81.4
African American	83.3	87.8	81.5	79.3	83.9
White	73.7	78.3	78	73.4	72.9
Other	80.4	79.2	60.2	77	86.2
Total	75.6	81	80.4	73.7	74.9

* p<0.10; ** p<0,05; *** p<0.01

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