# Medicaid Managed Care and Racial Disparities in AIDS Treatment

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*The study compares racial differences in access to highly active antiretroviral therapy (HAART) for human immunodeficiency virus (HIV) patients under Medicaid managed care and Medicaid fee-for-service (FFS). This study uses the HIV Cost and Services Utilization Study (HCSUS) data set. The analysis includes Black and White Medicaid enrollees with HIV/AIDS in 1996. Logistic regression is used to estimate the models with exposure to HAART as the dependent variable. This study suggests that Black enrollees still face barriers in access to care, even after Medicaid has assured financial access. Disparities in access to HIV/AIDS treatment exist under both Medicaid FFS and Medicaid managed care.*

## INTRODUCTION

Well-documented racial and ethnic differences in care have attracted increased attention from policymakers. *Healthy People 2010*, for example, established eliminating racial and ethnic disparities as a formal public policy goal for the U.S. health care system (U.S. Department of Health and Human Services, 2000). The AIDS epidemic in particular is recognized as a major health and socioeconomic problem that disproportionately affects low-income minorities who are at risk of poor access to care. Notwithstanding the implementation of health care policies to reduce disparities among populations with HIV/AIDS, significant racial/ethnic differences in access to care remain (Cunningham et al., 1999; Cunningham et al., 2000; Crystal et al., 2001).

In 1996, a CDC treatment guideline recommended the use of HAART for the clinical management of all HIV/AIDS patients with a CD4 cell count lower than 500 cells/mm3. CDC (1998) defines HAART as specific combinations of three classes of antiretroviral (ARV) drugs. Prior to the introduction of ARV therapies, HIV/AIDS patients had a very poor prognosis. The ARV drug treatment helps prevent HIV, the retrovirus that causes AIDS, from reproducing and infecting cells in the body. HAART treatment has been proven to be effective in controlling the deterioration of CD4 cells, which are the white blood cells that help direct the body's infection-fighting cells (Centers for Disease Control and Prevention, 1998). A study by Gebo et al. (2001) indicates that hospitalization rates among HIV patients decreased between 1995 and 1997 after the introduction of HAART. Valenti (2001) concluded that the drug combination improves outcomes, patients live longer and have more sustained viral load suppression, and have lower health care costs. Despite the benefits, Black people have less access to HAART compared with White people (Shapiro et al., 1999; Andersen et al., 2000; Keruly, Conviser, and Moore, 2002).

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Policymakers have traditionally focused on Medicaid insurance as one means of increasing access to care among vulnerable populations. Medicaid served more than 50 percent of all persons living with AIDS, and 90 percent of all children with AIDS, at an estimated cost of $35 billion to the Federal and State governments in 1998 (Health Care Financing Administration, 1998). Increasingly, government is relying on the managed care sector to provide coverage for the Medicaid population as a cost-containment mechanism. While 40 percent of Medicaid beneficiaries were enrolled in managed care in 1996 (Health Care Financing Administration, 1998), the percentage increased to more than 55 percent in 2000 (Henry J. Kaiser Family Foundation, 2000). Concurrently, the numbers of people with HIV/AIDS receiving services in managed care organizations (MCOs) have increased within the last two decades and concerns over access, quality of care, and satisfaction with services have grown as well.

Studies have produced inconclusive results on the effect of managed care on access to care for vulnerable populations. These inconsistent findings, perhaps, could be explained by variations in State practices, different payment methodologies, and different conception and definitions of access measures (Hughes and Luft, 1998; Szilagyi, 1998).

This study uses a nationally representative sample to analyze the effects of managed care on access to the recommended HIV/AIDS treatment (HAART) for Black and White Medicaid patients. Specifically, the study addresses three research questions:

- Does access to HAART differ between Black and White Medicaid patients?
- Does Medicaid managed care increase access to HAART?
- Does Medicaid managed care reduce racial disparities in access to HAART?

## CONCEPTUAL FRAMEWORK

Medicaid managed care participants represent primarily those enrolled in health maintenance organizations (HMOs), prepaid health plans (PHPs), health insuring organizations (HIOs), and primary care case management (PCCM) (Centers for Medicare & Medicaid Services, 1997). HMOs and HIOs are entities that contract with the State on a prepaid capitated risk basis, while PHPs may contract on either a capitated or non-risk basis. In the PCCM, the State contracts directly with a primary care provider (PCP) who is responsible for the provision and/or coordination of medical services and receives a case management fee for his or her services. Services are reimbursed on an FFS basis in the PCCM. In 1997, approximately 65 percent of the Medicaid managed care population was enrolled in HMOs, PHPs, or HIOs, 22 percent was enrolled in PCCMs, and 13 percent was enrolled in other types of arrangements.

Managed care systems have mechanisms in place to minimize duplication of services and control costs. These include primary care gatekeeping, a preselected network of providers, and the use of financial incentives to manage utilization (Reschovsky and Kemper, 2000). We argue here that compared with the FFS system, Medicaid managed care has a greater potential to reduce the racial/ethnic variations in access to care for HIV/AIDS enrollees given the managed care organizational characteristics, which include service coordination, adequate provider networks, access to trained specialists, improved physician reimbursement, and its amenability to HIV/AIDS consumer advocacy.

MCOs monitor care to ensure that there is continuity and coordination of the care that managed care enrollees receive across

practices and provider sites that are part of the networks. This requirement is a part of the accreditation criteria set forth by the National Committee on Quality Assurance (1998). Greater continuity and coordination of care are considered major elements of access to primary care and are deemed essential in addressing disparities in care (Shi et al., 2002).

Network arrangements give MCOs an added advantage in terms of access to specialists and experienced providers in treating HIV/AIDS, which should increase provider adherence to treatment guidelines and reduce racial disparities in care (Conviser, Murray, and Lau, 2000). Furthermore, providers with experience in treating HIV/AIDS have a positive impact on the survival of the patient, and facilities with greater experience in caring for HIV/AIDS patients make effective use of resources (Kitahata, et al., 1996; Stephenson, 1996).

Unlike FFS systems, MCOs can facilitate the adoption and implementation of practice guidelines with a systematic approach that involves establishing a guideline review process, gaining the support of providers, selecting outcomes measures, collecting and analyzing outcomes data, providing feedback to clinicians about the impact of changes in their practices, and using rewards to reinforce appropriate physician behavior (Kongstvedt, 1997). As a result, managed care physicians are more likely to adhere to treatment guidelines during this process than FFS physicians.

Patient advocates play an important role in promoting improved access to services, and MCOs can provide a focal point for advocacy activities. Consumer advocacy groups may monitor the level of access to care for HIV/AIDS patients, which may increase the responsiveness of MCOs to racial disparities in access to care (Saucier, 1995).

In summary, based on previous research we expect that Black Medicaid HIV patients will be less likely to have access to HAART than White Medicaid HIV patients. However, the level of accountability required of Medicaid managed care systems may reduce racial/ethnic variations in access to care when compared with a less regulated Medicaid FFS system that often lacks the ability and will to measure performance and results (Highsmith and Somers, 2000).

### Hypotheses

Hypothesis 1 (H1)

The probability of access to HAART for White Medicaid patients will be greater than the probability of access to HAART for Black Medicaid patients.

Hypothesis 2 (H2)

The probability of access to HAART for Medicaid managed care patients will be higher than that for Medicaid FFS patients.

Hypothesis 3 (H3)

The racial difference in access to HAART under Medicaid managed care will be lower than the racial difference in access to HAART under Medicaid FFS.

## METHODS

### Data

The HCSUS cohort is a nationally representative probability sample of HIV-infected adults receiving care in the contiguous United States. HCSUS covers cost, use, and quality of care; access to care; unmet needs for care; quality of life; social support; knowledge of HIV; clinical outcomes;

**Table 1**

**Medicaid Insurance Type of Study Population, by Race and Sex: 1996**

| Insurance Type | Race | | Total |
|---|---|---|---|
| | White | Black | |
| **Managed Care** | | | |
| Male | 109 | 80 | 189 |
| Female | 41 | 96 | 137 |
| Total | 150 | 176 | 326 |
| **Fee for Service** | | | |
| Male | 178 | 155 | 333 |
| Female | 60 | 143 | 203 |
| Total | 238 | 298 | 536 |
| Total | 388 | 474 | 862 |

NOTE: The study population consisted of 862 Black and White Medicaid respondents.

SOURCE: Agency for Healthcare Research and Quality: Data from the HIV Cost and Services Utilization Study (HCSUS) Data, 1996.

mental health; and provider and patient characteristics. The HCSUS used a multistage national probability sampling to select the study cohort: metropolitan statistical areas and clusters of rural counties were randomly selected in the first stage, medical providers within selected areas in the second stage, and patients from selected providers in the third stage (Andersen, et al., 2000). Baseline interviews began in January 1996 and ended 15 months later with 2,864 respondents. This study used data from the baseline and the 6-month followup surveys. Ninety-two percent of the baseline interviews were conducted in person and the remainder over the telephone.

## Sample

The study population is limited to persons age 18 or over with known HIV infection who made one visit for regular or ongoing care to a non-military, non-prison medical provider other than an emergency department before December 1996. This study used 862 Black and White Medicaid respondents of the total 2,466 respondents interviewed in the first followup. The sample sizes in the HCSUS data set could only support comparisons between Black and White Medicaid respondents. Other racial classifications in the data set included Hispanics, Asian, and other, however, the size of these subpopulations who were enrolled in either Medicaid FFS or managed care were not large enough to conduct any comparative analysis.

Of the 862 respondents in the analytic sample, Black respondents comprised 55 percent and White respondents represented 45 percent (Table 1). Sixty-two percent of the sample reported they were enrolled in the FFS system, while 38 percent reported Medicaid managed care as their payment mechanism. Among Black respondents, approximately 63 percent were enrolled in Medicaid FFS systems and 37 percent in Medicaid managed care. Among White respondents, approximately 61 percent were enrolled in Medicaid FFS and 39 percent were enrolled in Medicaid managed care.

## Measures

### Access to HAART

Exposure to HAART is the dependent variable. The HAART variable is a dichotomous variable (0,1) representing whether or not respondent reported taking HAART by December 1996. Given that according to treatment guidelines all HIV/AIDS patients should be prescribed HAART to manage the depletion of CD4 cells, and given that only licensed physicians have the authority to prescribe HAART, this study therefore uses access as the receipt of HAART prescriptions. Access to HAART is hypothesized to be a function of race, managed care, and other factors:

Access to HAART=f(Race, managed care, and other factors).

### Race and Managed Care

Race is categorized as Black or White. There are two basic types of Medicaid insurance: managed care or FFS. Using the CMS classification (1997), Medicaid managed care participants represent primarily those enrolled in HMOs, PHPs, HIOs, and PCCM. In the first followup interview, the survey asked respondents whether or not they needed authorization for specialty care. This question was used to distinguish managed care enrollees from FFS enrollees. Respondents requiring authorization for specialty care were considered having a physician gatekeeper and were classified as receiving care through managed care. Although self-reporting of gatekeeping may be subject to measurement error because some respondents may not know exactly how their plan works, we believe this is still a reasonable measure of managed care for this study. First, prior studies have used self-reported measures of gatekeeping to classify respondents into managed care plans (Hargraves, Cunningham, and Hughes, 2001; Phillips, Mayer, and Aday, 2000). Second, it is more likely that HIV/AIDS patients will be more familiar with the gatekeeping arrangements of their health plans than the general population. Finally, studies using the Community Tracking Study household survey data found results to be robust independently of whether they used self-reported or plan-reported measures of gatekeeping (Hargraves, Cunningham, and Hughes, 2001).

Because this study examines the effects of Medicaid managed care on racial variations between White and Black enrollees in access to HAART treatment, four variables consisting of the interactions between Medicaid insurance type (FFS and managed care) and race were created: (1) Black FFS enrollees, (2) White FFS enrollees, (3) Black managed care enrollees, and (4) Black managed care enrollees.

### Control Variables

Three sets of independent variables are included in the model to control for factors other than race and type of Medicaid insurance that affect access to care. These reflect the three components of the Behavioral Model of Health Services Utilization: predisposing, enabling, and need factors (Andersen, 1968) (Table 2).

### Predisposing/Personal Attributes

Predisposing characteristics are represented by six main variables: sex, age, education, employment status, trust in provider, and perceptions/beliefs in efficacy of treatment.

Sex is categorized as male = "0" and female = "1". The three age categories are: 18-34, 35-49, and 50 or over. The categories used to measure the respondent's education are: some high school, high school degree, some college, and college degree. To capture employment status respondents who are full/part time, job-sick leave, and/or not working for other reasons are considered employed. Those who are laid off, unemployed—looking for work, disabled—not working, retired—not working, none of the above, and/or not working/looking for work are coded as unemployed.

Two questions in the HCSUS questionnaire measure the patient's trust in their physician or clinic. The first question asks respondents whether they trusted their physicians to provide them with high quality medical care (trust in provider—quality care). The second question asks respondents whether they trusted their physicians

## Table 2
## Characteristics of Study Population: 1996

| Variable | *N* | Percent |
|---|---|---|
| **Predisposing Factors** | | |
| **Age** | | |
| 18-34 Years | 299 | 34.7 |
| 35-49 Years | 476 | 55.2 |
| 50 Years+ | 87 | 10.1 |
| **Sex** | | |
| Male | 522 | 60.5 |
| Female | 340 | 39.5 |
| **Education** | | |
| Some High School | 289 | 33.5 |
| High School Degree | 274 | 31.8 |
| Some College | 241 | 28.0 |
| College Degree | 58 | 6.7 |
| **Employment Status** | | |
| Employed | 123 | 14.3 |
| Unemployed | 739 | 85.7 |
| **Trust in Provider—Quality Care** | | |
| High Trust | 755 | 87.6 |
| Low Trust | 107 | 12.4 |
| **Trust in Provider—Health a Priority** | | |
| High Trust | 711 | 82.5 |
| Low Trust | 151 | 18.0 |
| **Perception/Belief in Efficacy of Treatment** | | |
| Positive | 707 | 82.0 |
| Negative | 155 | 18.0 |
| **Enabling Factors** | | |
| **Insurance** | | |
| Managed Care | 326 | 37.8 |
| Fee-for-Service | 536 | 62.2 |
| **Income** | | |
| <$5000 | 260 | 30.2 |
| $5000 to $10,000 | 349 | 40.5 |
| $10,001 to $25,000 | 194 | 22.5 |
| >$25,001 | 59 | 6.8 |
| **Need Factors** | | |
| **CD4 Count** | | |
| <200 | 485 | 56.3 |
| Between 200 and 499 | 308 | 35.7 |
| >500 | 69 | 8.0 |
| **Medical Needs** | | |
| High | 59 | 6.0 |
| Low | 803 | 94.0 |
| **Personal Needs** | | |
| High | 41 | 4.8 |
| Low | 821 | 95.2 |

SOURCE: Agency for Healthcare Research and Quality: Data from the HIV Cost and Services Utilization Study (HCSUS) Data, 1996.

to put their health above all concerns (trust in provider- health a priority). Both questions are asked using a 5-point scale (1=completely, 2=mostly, 3=somewhat, 4= a little, 5= not at all). Examination of the frequencies revealed that both variables had a bimodal distribution. Therefore, the variables were recoded so that patients with 1 and 2 scores were coded as "1" or high trust in their physician, while those who scored 3 to 5 were coded as "0" or low trust.

Perceptions/beliefs in efficacy of treatment measures the respondent's perceptions or beliefs in the efficacy of anti-retroviral therapy in the treatment of HIV infection. The question is asked using a 4-point scale (1=definitely worth taking, 2=probably worth taking, 3=probably not worth taking, 4=definitely not worth taking). A further exploration of the frequencies of this variable revealed that it was a bimodal distribution. As a result, the variables were recoded so that patients with 1 and 2 scores were coded as "1" indicating a positive perception in efficacy of treatment, while those who scored 3 and 4 were coded as "0" or having a negative perception.

### Enabling Factors

The enabling characteristic is represented by income which consists of four categories: less than $5,000, $5,000-$10,000, $10,001-$25,000, and more than $25,000. All respondents in this study are covered by Medicaid insurance, an important enabling factor.

### Need Characteristics

Three main variables characterizing need factors are the CD4 count and the patients' medical need and personal need. The CD4 count is used as a clinical indicator for classifying the health status of HIV/AIDS patients. CD4 counts are classified into three categories: less than 200 cells/mm3, 200-499 cells/mm3, and 500 cells/mm3 and above. The CD4 count is a reliable predictor of HIV infection, AIDS progression, the risks for particular AIDS-related conditions, and medical care needs (Chang, Servellan, and Lombardi, 2003; Seage et al., 2002). This variation could potentially influence the decision to initiate antiretroviral treatment (Shapiro et al., 1999; Andersen et al., 2000).

Perceived medical and personal needs are assessed using two survey items. Because of limited resources, patients have to make decisions on how to allocate resources. For HIV patients especially, the most competing needs tend to be either provision of medical treatment or food, clothing, and housing. The first item addresses perceived medical needs and asks the respondent: "Have you ever had to go without health care that you needed because you needed the money for food, clothing, housing, etc?" The second item addresses perceived personal needs by asking the respondent: "Have you ever had to go without food, clothing, housing, etc. because you needed the money for health care?" Need questions in the HCSUS data set are asked using a yes/no response. Respondents who answered yes for the personal needs question were coded as "1" indicating high personal needs, while those responding no were coded "0" indicating low personal needs. The same rationale was applied to the medical needs question.

## Model Estimation

Because the dependent variable is dichotomous, the study used logistic regression to estimate the models. The

mathematical representation of the multiple logistic regression models used in this analysis is in the form:

$$\text{Log}\ (P_i/1\text{-}P_i) = \beta_0 + \beta_i\ \text{Race} + \beta_j\ \text{MC} + \beta_x\ X + \varepsilon,$$

where

$P_i$ = probability of receiving HAART treatment,

X= other factors.

The first logistic regression (Model 1) tested whether there are significant variations in access to HAART between Black and White Medicaid patients (hypothesis 1), and whether there are significant differences in access to HAART between Medicaid managed care and Medicaid FFS patients (hypothesis 2). The second logistic regression was used to test hypothesis 3 by examining the interaction effects of race and insurance (Model 2). Specifically, we examined whether the racial disparities within the Medicaid managed care are significantly different from the racial disparities within Medicaid FFS. To interpret the results, we obtained predicted means of the probability of receipt of HAART for each of the four race/insurance categories (White FFS, Black FFS, White managed care, Black managed care) controlling for all confounding variables. Using the estimated coefficients for Model 2, predictions were made for each individual assuming they were in a given race/insurance category and then averaged using the sample weights. This was repeated for each of the four race/insurance categories to obtain the predictions.

The next step was to determine the magnitude of the racial difference between managed care and FFS in the probability of receipt of HAART treatment, and if such difference is statistically significant:

$$H_o = (\rho\ \text{White managed care} - \rho\text{Black managed care}) - (\rho\ \text{White FFS} - \rho\ \text{Black FFS}) = 0$$

$$H_a = (\rho\ \text{White managed care} - \rho\text{Black managed care}) - (\rho\ \text{White FFS} - \rho\ \text{Black FFS}) \neq 0$$

where

$\rho$ = probability of receiving HAART treatment,

$\rho$ White managed care - $\rho$ Black managed care=racial differences in managed care,

$\rho$ White FFS - $\rho$ Black FFS= racial differences in FFS.

Since this study focuses on the effect of Medicaid insurance on access to care, it potentially suffers from bias from the endogeneity of insurance type (Rechovsky and Kemper, 2000). Selection bias in this study can be characterized by self-selection into either Medicaid managed care or FFS due to systematic differences between those who enroll in managed care versus those that stay in FFS. However, enrollment into managed care in many States is mandatory, and this reduces potential selection bias. In addition, the unique nature of the study greatly reduces any potential effect of selection bias. The HAART guideline recommends therapy for all asymptomatic patients with a CD4 cell count less than 500 cells/mm3; therefore, self-selection into either insurance category should not affect the likelihood of access to treatment. To test for differences between respondents in the two insurance types, Pearson Chi-Square tests of independence were performed to determine if enrollment into either group depended on age, education, employment, income, and/or health status. The results showed no significant relationships between Medicaid insurance type and any of the analyzed variables.

All analyses were conducted using the STATA statistical analysis software to account for the complex sample design of HCSUS. In accordance, models were estimated with techniques that consider the positive correlation among geographically clustered observations. STATA uses a Taylor series linearization method to calculate the

**Table 3**

**Logistic Regression Results for Probability of Receiving HAART Treatment: 1996**

| Variable | Model 1 | Model 2 |
|---|---|---|
| | Coefficient (Standard Error) | Coefficient (Standard Error) |
| Black | ***-0.818 (0.210) | — |
| Fee-for-Service (FFS) | -0.275 (.201) | — |
| Black Managed Care | — | *-0.532 (0.272) |
| Black FFS | — | ***-0.918 (0.321) |
| White Managed Care | — | 0 .123 (0.182) |
| Male | -0.062 (0.165) | -0.057 (0.166) |
| 18-34 Years | -0.190 (0.243) | -0.208 (0.222) |
| 35-50 Years | -0.298 (0.263) | -0.306 (0.253) |
| Unemployed | -0.057 0.258) | -0.065 (0.257) |
| Some High School | -0.553 (0.398) | -0.544 (0.398) |
| High School Degree | -0.401 (0.339) | -0.392 (0.343) |
| Some College | -0.558 (0.352) | -0.552 (0.352) |
| High Trust in Provider—Quality Care | 0.196 0.328) | 0.184 (0.325) |
| High Trust in Provider—Health a Priority | -0.202 (0.322) | -0.205 (0.337) |
| Positive Perception/Belief in Efficacy of Treatment | *** 1.222 (0.310) | ***1.219 (0.309) |
| Income <$5,000 | -0.200 (0.298) | -0.199 (0.302) |
| Income $5,000 to $10,000 | -0.246 (0.276) | -0.241 (0.279) |
| Income $10,001 to $25,000 | -0.143 (0.272) | -0.140 (0.276) |
| CD4 < 200 | ***1.307 (0.324) | ***1.307 (0.327) |
| CD4 200-499 | **0.543 (0.246) | **0.548 (0.245) |
| High Medical Needs | 0.421 (0.338) | 0.412 (0.335) |
| High Personal Needs | -0.301 (0.360) | -0.282 (0.350) |

* $p < 0.1$.

**$p < 0.05$.

***$p < 0.01$.

NOTES: HAART is highly active antiretroviral therapy. Model 1 presents the overall effects of race and Medicaid insurance type on the probability of receiving HAART. Model 2 shows the interaction effects of race and insurance on the probability of receiving HAART. Referent categories: White, managed care, White FFS, female, < 50 years, employed, college degree, low trust (quality of care), low trust (priority), negative perception, income> $25,000, CD4 more than 500, low medical needs, and low personal needs.

SOURCE: Agency for Healthcare Research and Quality: Data from the HIV Cost and Services Utilization Study (HCSUS) Data, 1996.

corrected standard errors. In addition, analytic weights included in the data set were used in model estimation to correct for differential selection probabilities across subgroups of the population, non-response bias, and multiplicity (patients who have been seen by more than one eligible provider) (Andersen et al., 2000).

## RESULTS

Table 3 (Model 1) presents the overall effect of race and Medicaid insurance type on the probability of receiving HAART. Results show that the odds of Black enrollees receiving HAART treatment were 0.44 compared with White enrollees even after controlling for other predisposing, enabling, and need factors ($p < 0.001$). This result supports the first hypothesis that the probability of receiving HAART for White Medicaid patients would be relatively higher than the probability of receiving HAART for Black Medicaid patients. However, there was no support for hypothesis 2. Managed care enrollees were not significantly different than FFS patients in the probability of receiving HAART treatment.

Table 3 (Model 2) shows the interaction effects of race and insurance on the probability of receiving HAART. Both Black FFS and managed care patients experienced significantly lower probabilities of HAART use compared with White patients in FFS. The odds of Black patients in FFS receiving HAART treatment were 0.40 compared with White patients FFS ($p = 0.006$), While

**Table 4**

**Predicted Probabilities of Receiving HAART Treatment, by Medicaid Insurance Type and Race: 1996**

| Insurance Type | White | Black | Difference (White-Black) (*P* - Value) |
|---|---|---|---|
| Managed Care | 0.688 | 0.514 | **0.175 (-0.025) |
| Fee-for-Service | 0.680 | 0.429 | ***0.251 (-0.003) |
| Managed Care Fee-for-Service Difference (*P*-value) | 0.008 (-0.504) | 0.085 (-0.298) | -0.076 (-0.290) |

*$p<0.1$.

**$p<0.05$.

***$p<0.01$.

NOTES: HAART is highly active antiretroviral therapy. Predictions control for age, sex, education, employment, trust in quality and personal care, health status, perception, insurance type, income, medical and personal needs.

SOURCE: Agency for Healthcare Research and Quality: Data from the HIV Cost and Services Utilization Study (HCSUS) Data, 1996.

the odds of Black patients in managed care were 0.58 compared with White patients FFS ($p = 0.057$). However, White patients in managed care did not differ significantly from White patients in FFS in the use of HAART.

Table 4 presents adjusted predicted values of the probability of access to HAART. The adjusted predicted mean of access to HAART for enrollees in managed care was 0.51 for Black enrollees and 0.69 for White enrollees, while for persons participating in Medicaid FFS it was 0.43 for Black persons and 0.68 for White persons. These results reveal that the magnitude of racial difference in access to HAART in Medicaid managed care (0.175) is relatively lower than the racial difference in access to HAART for Medicaid FFS patients (0.251). Managed care reduces the levels of racial variation by as much as 7.6 percent. However, a statistical test of the racial difference in HAART treatment between FFS and managed care revealed that the improvement in access to HAART was not significant ($p$ <0 .29). Therefore, the third hypothesis was not supported by the results.

## DISCUSSION

The purpose of this study was to examine the effect of Medicaid insurance type (FFS versus managed care) on access to HAART for Black and White Medicaid patients. We found that Black persons experience lower access to HAART, even after financial access has been assured through Medicaid. Furthermore, the study revealed that racial disparities between Black and White persons' in access to HAART exist in both FFS and managed care, even after controlling for predisposing, enabling, and need factors. This result is consistent with other studies showing that race has a consistent independent effect on receipt of HAART treatment (Cunningham et al., 1999; Crystal et al., 2001). These findings are relevant in light of the recent Institute of Medicine report (2003) and the *Healthy People 2010* goals for reducing racial disparities. The Institute of Medicine's first recommendation for reducing racial and ethnic disparities in health care is to increase awareness about the problem among the general public, health care providers, insurance companies, and policymakers.

It is evident from this study that providing insurance coverage does not guarantee adequate access to care. All the respondents had similar insurance coverage, which should ensure comparable access to HAART, yet the racial disparities persist. Evidence from this study confirms the need to address disparities in care for the minority and poorer populations. Studies by Schulman et al. (1995), Mort et al. (1994), and Dries et al. (1999) have all shown that a patient's race and socioeconomic status may influence access to care regardless of the patient's clinical characteristics and health insurance status. Improved access to clinically appropriate care is considered key in reducing health disparities, particularly in the case of minority and low-income populations where the health risks are greatest (Shin, Jones, and Rosenbaum, 2003).

This study also reveals that racial disparities in access to care were prevalent in managed care systems, despite managed care's potential of eliminating racial disparities in access through greater patient-care coordination, improved provider networks, and the use of administrative mechanisms for quality assurance. This is consistent with previous research showing racial/ethnic disparities in access to care in Medicaid managed care (Tai-Seale, Freund, and LoSasso, 2001; Weech-Maldonado et al., 2003). Health care administrators and policymakers cannot simply rely on enrollment in managed care systems to eliminate disparities in access to care for Black HIV/AIDS patients.

While some may think that eliminating barriers such as insurance and income are key to reducing disparities, others have held the view that a host of factors work to create impediments to care, and that merely eliminating the self-evident barriers may do little to reduce the discrepancies in care (Andrulis, 1998). There are complexities of issues surrounding the care of HIV/AIDS patients, which puts a burden on FFS and managed care systems, because treatments may be prescribed, but not received by patients for any number of reasons. For HIV/AIDS patients, stable and adequate housing has been considered very critical for continuity of care especially with the advent of antiretroviral therapy (Bonuck, 2001). Other major barriers to care that have been cited in the literature have included: lack of knowledge about HIV, insufficient personal financial resources, lack of personal or public transportation, and the lack of supportive and caring caregiver environments (Cunningham et al., 2000; Crystal et al., 2001). Racial/ethnic minorities may be more exposed to these barriers compared with White persons, which in turn could potentially determine whether or not patients receive access to HAART. Minorities also bring cultural, social, and behavior beliefs, and values that providers need to understand in order to fashion their care to meet the needs of minority groups.

Given the devastating impacts of HIV/AIDS on minority populations, and the role of Medicaid as the largest single payer of services for these patients, there is a crucial need to develop alternative strategies. One strategy includes the training in culturally competent care and recruitment of diverse providers and staff. Adopting and developing cultural specific and sensitive competencies in patient care could be cost effective for either FFS or managed care systems. Patient education programs should also be expanded to increase patients' knowledge of how to best access care, ask the right questions during clinical encounters, and participate in treatment decisions. Furthermore, policymakers should design incentives aimed at influencing provider behavior to ensure equal access to care. Given that patients

with HIV/AIDS often have dual or multiple-diagnosis or high levels of severity, care for these patients could be reimbursed at an increased level in both FFS and managed care settings. This would also allow for increased time for physician interaction.

This study focuses on Black and White enrollees and this limits the generalizability of results to other minority populations, such as Hispanics, which are also disproportionately affected by the HIV/AIDS epidemic. The sample size of the Hispanic Medicaid population in the HCSUS data was too small to allow a separate analysis for this group. While the focus of this study was access to HAART, it must be noted that this variable would miss patients who are receiving other types of AIDS treatment, such as protease inhibitors, nucleoside/nucleotide analog reverse transcriptase inhibitors, or non-nucleoside reverse transcriptase inhibitors. Another limitation of the study is that the information used to distinguish FFS from managed care patients was based on respondent's self-reported data. Data limitations also precluded an analysis of differences in HAART receipt between PCCM enrollees and traditional HMO enrollees. PCCMs have many features that distinguish them from HMOs, such as direct contracts between the State and the primary care providers and reimbursement based on FFS. Previous studies have shown differences in access to care between these two major types of Medicaid plans (Smith et al., 2000; Shields et al., 2003). Finally, data limitations did not allow the identification of voluntary versus mandatory enrollment into Medicaid managed care. Voluntary programs are more likely than mandatory programs to result in self-selection bias into Medicaid managed care. However, even in mandatory managed care programs there is potential for selection bias if certain groups are excluded, such as the aged or disabled populations.

Future research is needed into the effect of culture, severity, and other patient-related factors on access to and utilization of care for HIV/AIDS patients. A question not adequately addressed by previous research has been the extent to which physicians' decisionmaking is responsible for treatment variations by race. Physician bias and prejudice can play a role in treatment disparities (Institute of Medicine, 2003). In addition, the transaction cost of cross-cultural patient-physician encounters, cross-cultural patient-physician agency relationships, and levels of information asymmetry in cross-cultural patient-physician encounters are worth investigating.

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