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Characteristics of Children in Medicaid Managed Care and Medicaid Fee-for-service, 2003–2005

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Abstract

Objectives—Medicaid claims have been used to characterize utilization patterns of child Medicaid beneficiaries. However, because states are increasingly adopting Medicaid managed care plans, analyses of children enrolled in Medicaid based only on claims for fee-for-service (FFS) programs may not apply to the general Medicaid population.

Methods—The 2003–2005 National Health Interview Survey and 2003–2005 Medicaid Analytic eXtract linked files were used to examine associations between sociodemographic, health, and geographic characteristics of children aged 0–17 years and enrollment in Medicaid FFS compared with a comprehensive managed care (CMC) program. Additional analyses of age-specific health outcomes were performed on a subset of children aged 6–17 years. Chi-square tests were used to assess associations, and 95% confidence intervals are provided for point prevalence estimates.

Results—Higher percentages of children in CMC compared with FFS were non-Hispanic white, lived in families with income less than 100% of the federal poverty level, had excellent or very good health, lived in the Northeast and West, and lived in large central metro areas. No significant differences were observed by sex, age, and asthma diagnoses between children enrolled in CMC and FFS. Among children aged 6–17 years, higher percentages of children enrolled in FFS compared with children in CMC were diagnosed with learning disabilities or developmental delays and attention deficit hyperactivity disorder.

Researchers using data from children enrolled only in Medicaid FFS programs to describe children enrolled in Medicaid should understand differences between children enrolled in CMC and FFS. Generalization of study results from FFS claims may depend on the outcomes examined.

Keyword: health insurance coverage

Introduction

Understanding patterns of health care utilization for Medicaid enrollees may be helpful for both policymakers and researchers. Claims data have often been used to characterize the utilization patterns of child Medicaid beneficiaries to examine such diverse outcomes as maltreatment of children and asthma (1–3). However, Medicaid claims are generally not available for children enrolled in Medicaid managed care plans and, over the last 10 years, states have increasingly adopted these plans (4,5). From the years 1999 through 2011, the percentage of Medicaid beneficiaries aged 0–17 years enrolled in managed care plans increased from 56.0% to 86.5% (4,6). As a result of this shift, descriptions of utilization patterns for Medicaid children based only on enrollees in Medicaid fee-for-service (FFS) programs may not be as applicable to the general Medicaid population if children in FFS programs differ from those in managed care plans. On the other hand, similarities between groups provide some support for inferences to the general Medicaid population from analyses using the FFS subset.

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Utilization of health care services has been previously compared between those enrolled in FFS and managed care (7–10). Using a cross-sectional survey of randomly selected Medicaid beneficiaries in New York City that was administered in 1994, Ganz et al. reported that parents of Medicaid managed care enrollees were 3.5 times more likely than parents of children enrolled in Medicaid FFS to contact a usual provider instead of going to the emergency room (7). Using individual-level data from the 1991–1995 National Health Interview Survey (NHIS) linked by county to managed care data from the 1998 Urban Institute survey on Medicaid managed care programs, Garrett et al. similarly reported reductions in emergency room visits and an increased utilization of specialists among children in mandatory primary care case management or health maintenance organizations (HMOs), a specific type of Medicaid managed care program, relative to those in FFS (8). Using 1996–1997 and 1998–1999 Community Tracking Study Household Surveys matched to state–year Centers for Medicare & Medicaid Services (CMS) Medicaid managed care enrollment data, Baker et al. reported that states with higher percentages of HMOs had reduced emergency room visits, lower hospitalization rates, and more outpatient visits than states with lower HMO enrollment rates (9). Finally, Long et al. analyzed 1998 survey data of Medicaid recipients in rural Minnesota and reported few significant differences in access to, use of, and satisfaction with health care services for children enrolled in the two programs (10). Changes in eligibility requirements since the late 1990s may have impacted these results. Furthermore, comparisons of the underlying health and sociodemographic characteristics between children enrolled in Medicaid FFS and Medicaid managed care at the national level have not been conducted. This gap is largely due to the lack of individual-level sociodemographic and health data for children in Medicaid for whom FFS and managed care program status can be ascertained. As a result, it is unclear whether differences observed in utilization patterns between children in FFS and managed care might be due to differences in underlying health and sociodemographic characteristics of the children.

Children enrolled in Medicaid managed care programs may be enrolled in one or more of three types of Medicaid managed care plan arrangements: a comprehensive risk-based plan, a primary care case management plan, or a limited-benefit plan (11). In a comprehensive risk-based plan, the state pays a fixed amount to a health plan to cover all expenses for the child. In a primary care case management plan, a primary care physician receives a monthly payment per child to coordinate care, and all other services are reimbursed on an FFS basis. A limited-benefit plan is limited to specific types of benefits or services, such as mental health services and dental services (11). Children may be enrolled in one arrangement and not another for unique reasons, so this analysis focuses on enrollment in the most commonly enrolled managed care program, Medicaid comprehensive managed care (CMC).

In this report, sociodemographic, health, and geographic characteristics of children enrolled in Medicaid FFS are described and compared with CMC during 2003–2005 using data from NHIS linked to Medicaid Analytic eXtract (MAX) files. The linked data provide a unique opportunity for this analysis because NHIS contains sociodemographic and health characteristics that are not collected in the Medicaid claims files, and MAX data contain more precise enrollment information than collected in NHIS. Moreover, the NHIS contains health information for children in Medicaid managed care plans that would not be available to users of MAX files alone.

This report aims to aid researchers using the MAX data and data linked to the MAX data, such as NHIS and the National Health and Nutrition Examination Survey. Identifying potential differences between children enrolled in FFS and CMC programs will help researchers interpret results from studies based solely on children in FFS programs. Likewise, similarities in sociodemographic and health characteristics between children enrolled in FFS and CMC programs may support inferences from studies based on FFS claims to the general Medicaid population.

Methods

Data sources

NHIS

The Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) has administered NHIS, a nationally representative, cross-sectional population health survey, continuously since 1957. Although the survey design has changed over time, the current design is a multistage sample with primary sampling units of counties or adjacent counties, secondary sampling units of clusters of houses, tertiary sampling units of households, and finally, persons within households. The NHIS sample design has been described previously (12–14). As part of the current design, one sample child aged 0–17 years is selected from each household to create the sample child files, which were used for this analysis. Information about children is provided by a knowledgeable adult family member (aged 18 years or over) living in the household. For this report, the 2003–2005 NHIS was used. The sample child response rates for the 2003, 2004, and 2005 NHIS were 81.1%, 79.4%, and 77.5%, respectively (12–14).

MAX

Medicaid eligibility and claims files are submitted individually by each state to the Medicaid Statistical Information System (MSIS). Extracts of these files, the MAX files, are created for research purposes by CMS and consist of a person summary file, inpatient file, institutional long-term care file, prescription drugs file, and other services file (15). MAX data contain Medicaid enrollee eligibility information and Medicaid claims paid in each

quarter of the fiscal year, and individual-level information and claims-level records for detailed analysis.

Linkage of NHIS and MAX

The 1994–2005 NHIS data and 1999–2009 MAX data were linked by the NCHS record linkage program following an established algorithm (16). As multiple years of MAX data are available for each NHIS survey participant, depending on the survey year and program participation, the linked data can be used for longitudinal studies of MAX data before or after NHIS interview, as well as for cross-sectional studies using MAX information at the time of interview. Although multiple years of MAX data are available for each survey respondent, data from the 2003–2005 NHIS linked to corresponding MAX information for the month of the NHIS survey interview were used for this report. This was done because Medicaid eligibility, Medicaid enrollment, and health characteristics can change over time. At the time of this report, these were the most recent years of the NHIS sample that were linked to the MAX data.

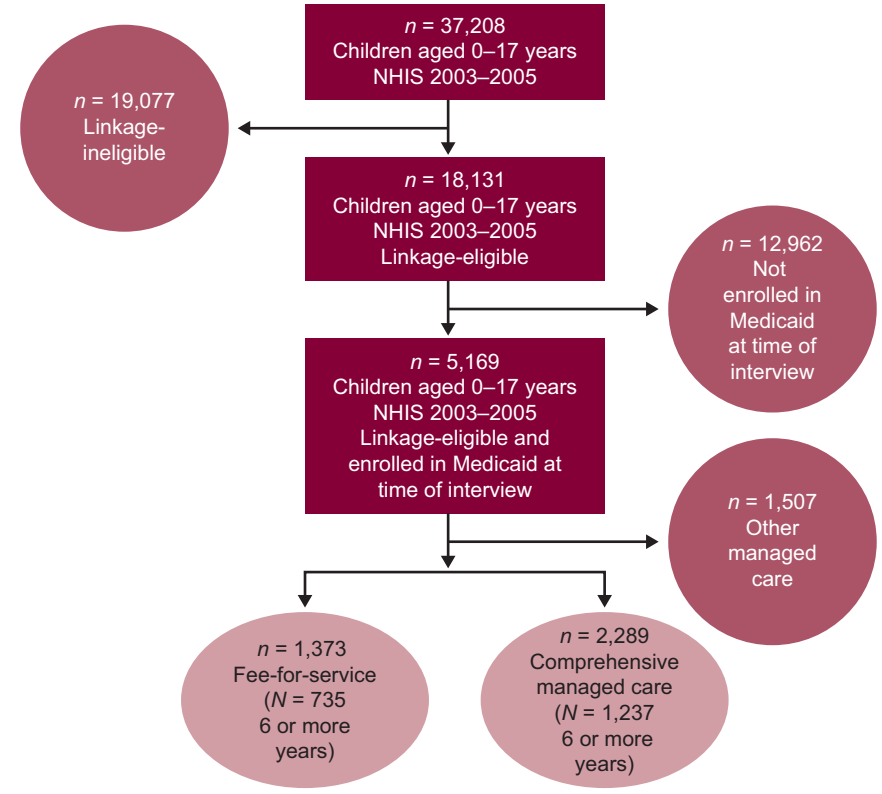
NHIS children were linkage eligible if the respondent knowledgeable about the child did not explicitly refuse to provide the child's Social Security number (SSN) (17). For all years, when the SSN of a survey respondent was missing (not explicitly refused) or incorrect, the Social Security Administration used an enhanced electronic verification of SSNs using name and date of birth to determine the correct SSN. The NCHS Research Ethics Review Board approved the linkage of NHIS files with the MAX files. No additional approval was required by NCHS for this analysis.

The linked NCHS-CMS Medicaid MAX files are restricted-use files that can be accessed through the NCHS Research Data Center. Feasibility study data files are publicly available to assist researchers who are considering using the linked NCHS-CMS Medicaid files (available from: http://www.cdc.gov/nchs/data_access/data_linkage/cms_medicaid.htm).

Variables

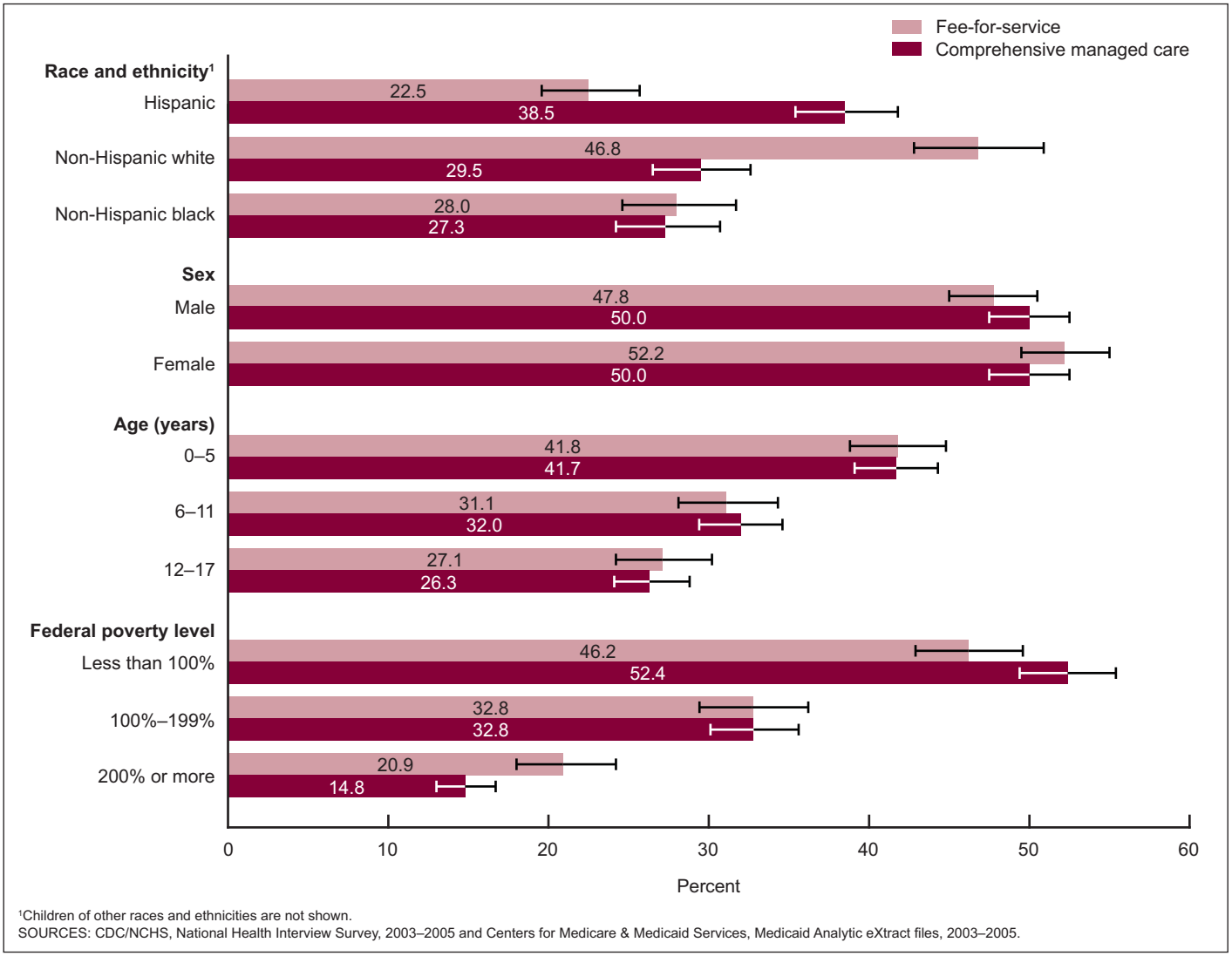
Variables in the MAX files that indicate monthly enrollment status, type of managed care program, and Children's Health Insurance Program (CHIP) enrollment status during the month of the interview were used to classify children into Medicaid FFS, CMC, or non-comprehensive managed care. Children in any type of CMC program at the time of their NHIS interview were classified as CMC regardless of concurrent participation in any additional types of managed care plans (e.g., primary care case management or limited-benefit plans). Children with only noncomprehensive plans (e.g., dental only, behavioral only, or primary care case management only) were excluded from this analysis (n = 1,507). Children enrolled in CHIP during the month of the interview were not included in this analysis because claims data are not consistently made available for CHIP enrollees across the states (n = 120). Children enrolled in CHIP programs that were part of the state Medicaid program, known as MCHIP, were included, because claims for these children are reliably included in the MAX data set. Children in MCHIP may be either FFS or CMC depending on state policy. In this analysis, children enrolled in MCHIP are not distinguished from those enrolled in Medicaid, and reference to Medicaid is henceforth inclusive of children enrolled in MCHIP.

Sociodemographic characteristics were examined, including: age group



NOTE: NHIS is National Health Interview Survey.
SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 1. Selection criteria



[1]Children of other races and ethnicities are not shown.
SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 2. Percent distribution of sociodemographic characteristics of children aged 0–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

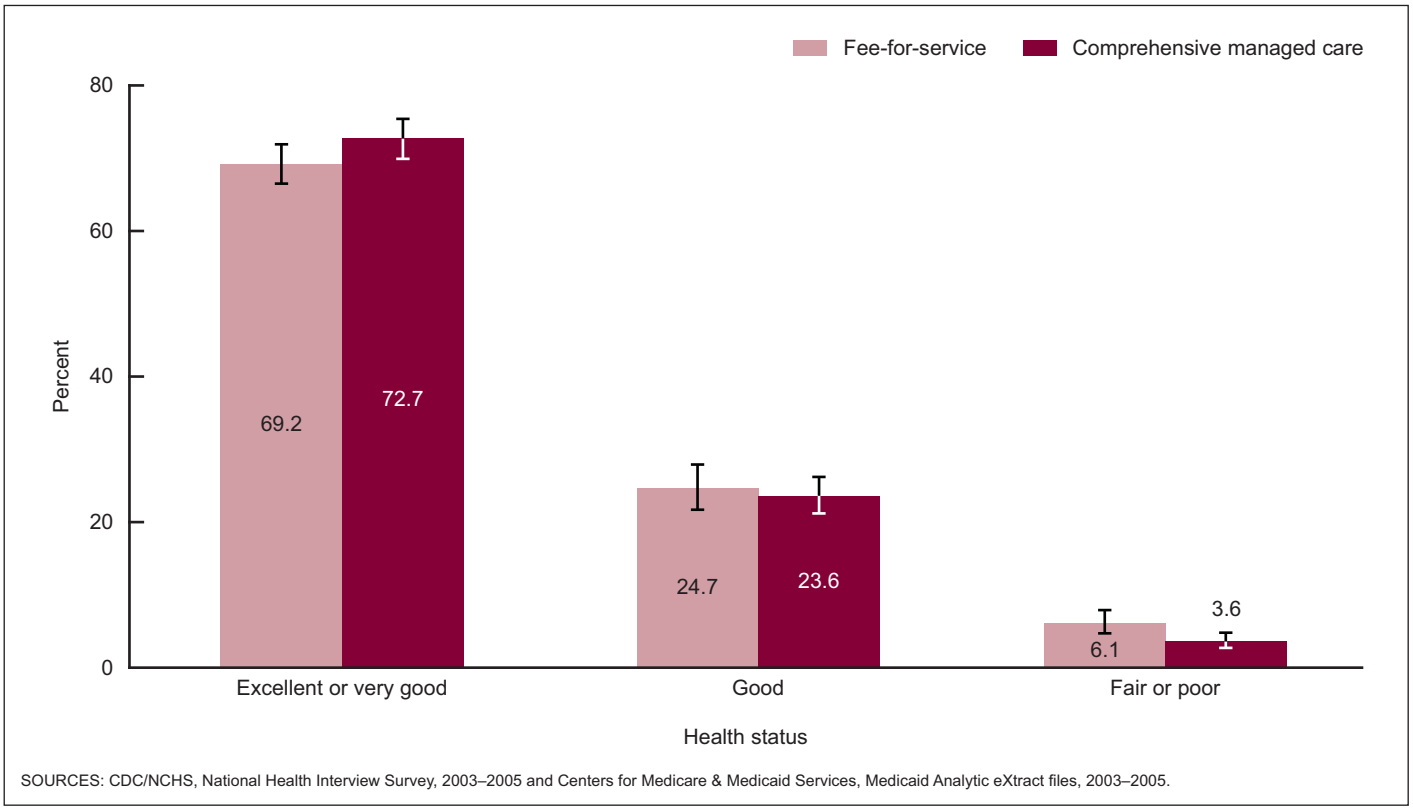
(0–5, 6–11, and 12–17 years), race and ethnicity (Hispanic, non-Hispanic white, non-Hispanic black, or non-Hispanic other race), sex, family poverty level [under 100% of the federal poverty level (FPL), 100%–200% FPL, or more than 200% FPL].

Asthma diagnoses and history of asthma were assessed using questions in NHIS that determined whether the child had ever been diagnosed with asthma, had an episode of asthma (asthma exacerbation) within the last 12 months, and currently had asthma. General health of the child was described using reported health status (fair or poor, good, or excellent or very good).

Access to care and service utilization were assessed using the number of times the child went to the emergency department (ED) in the last 12 months, whether the child had a well-child visit in the last 12 months, and whether the child had a usual source of care. Having a usual source of care was defined as responding "Yes" or "There is more than one place" to the question: "Is there a place that [sample child's name] usually goes when [he/she] is sick or you need advice about [his/her] health?" However, among children with a usual source of care, if the location of the usual source of care was the "hospital emergency room," the child was not considered to have a usual source of care. This approach is consistent with other health initiatives, such as the U.S. Department of Health and Human Services' Healthy People 2020 (18). Unveiled in December 2010, Healthy People 2020 is a 10-year agenda with measurable objectives for improving the nation's health.

To examine geography, the 2006 NCHS county-level urban–rural area codes (large central metro, large fringe metro, medium metro, small metro, and micropolitan or noncore) (19) and U.S. census regions (Northeast, Midwest, South, and West) were used.

Additionally, for children aged 6 years and over, school days missed due to an illness or injury (0, 1–5, 6–10, or more than 10), mental health diagnoses, and an overall measure of emotional or behavioral health were



SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 3. Percent distribution of health status of children aged 0–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

examined. Specifically, diagnoses identified included ever having been diagnosed with a learning disability, intellectual disability, or developmental delay, or ever having been diagnosed with attention deficit hyperactivity disorder (ADHD). Overall emotional or behavioral difficulties were categorized as none, minor, or definite or severe based on the answer to the survey question: ''Overall, do you think that [he/she] has difficulties in any of the following areas: emotions, concentration, behavior, or being able to get along with other people?''

Analytic sample

Of the 37,196 child respondents (aged 0–17 years) in the 2003, 2004, and 2005 NHIS files, 48.7% (18,131) were linkage-eligible. Of these, 5,169 linkage-eligible children aged 0–17 years were enrolled in Medicaid during the same year and month of their NHIS interview. After excluding 1,507 children who were enrolled in other Medicaid managed care programs, the analytic sample consisted of 3,662 children who were enrolled in Medicaid FFS or CMC in the same state in which they lived when the NHIS interview was administered (Figure 1). Fifty-four percent (1,972) of children in the analytic sample were aged 6–17 years and were included for analyses of questions asked only of children in this age group. Although Medicaid eligibility criteria change at age 19, children over age 17 were not included in this analysis, because family members aged 18 and over are considered adults in NHIS and are not eligible for selection as a sample child. Sample Adult questionnaire also differs from the Sample Child questionnaire.

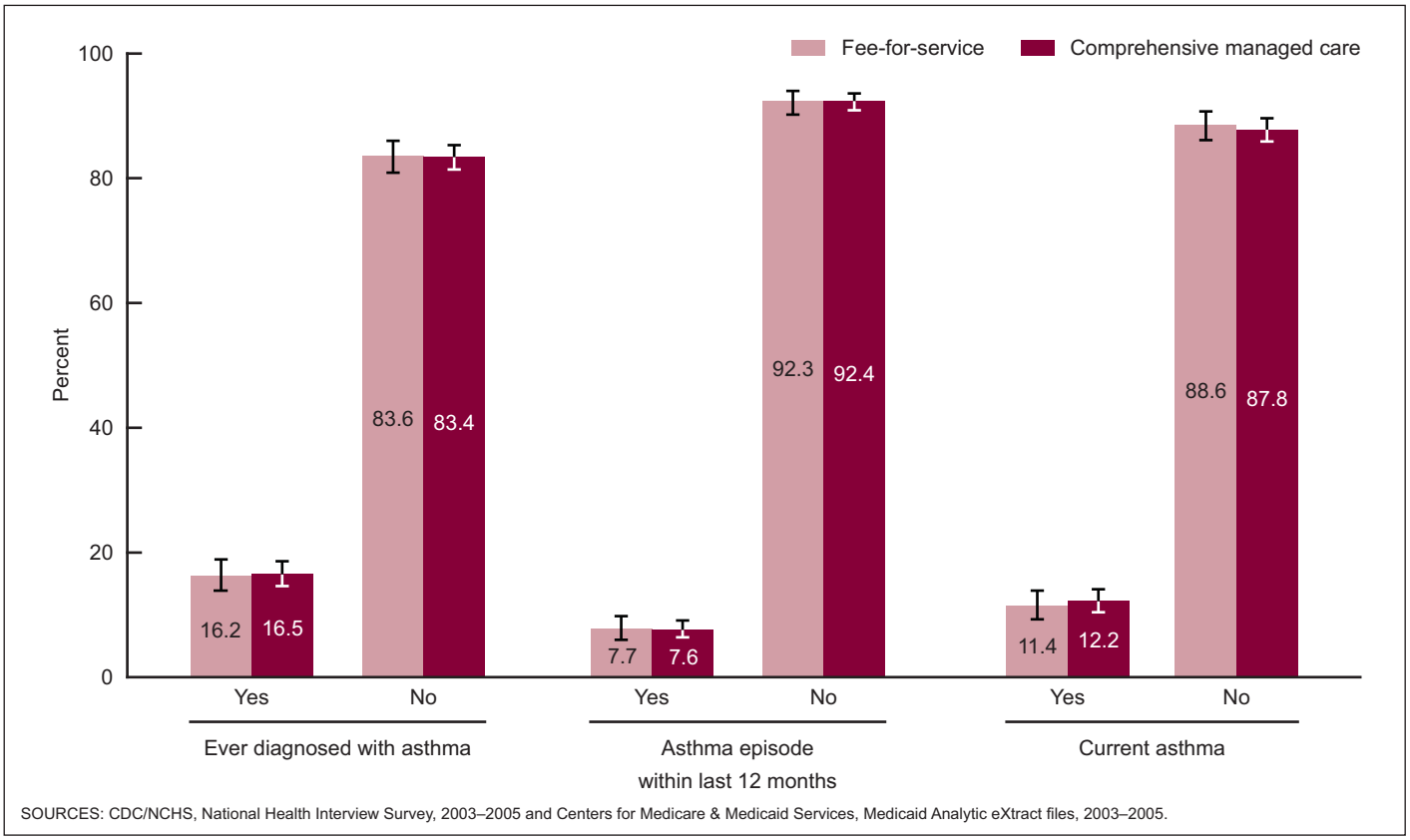
Data were missing for race and ethnicity for 11.8% of children included in the analysis, but single imputation was performed by NCHS and imputed data were used in this analysis. Family income was missing for 17.9% of children in the analysis, but multiply imputed data, included in the NHIS file for family percentage of poverty level, were used in all analyses. The number of school days missed was missing for 2.1% of children aged 6–17 years. The amount of missing values for all other outcome variables totaled less than 1%.

Analysis

Weighted percent distributions of children's characteristics and 95% confidence intervals based on a logit transformation are presented for children enrolled in Medicaid FFS and CMC. Sample sizes are shown unweighted. Missing values (responses coded as ''refused'' or ''don't know'') were not counted in the denominators when calculating percentages or sample sizes. All percentages presented have a relative standard error, RSE = (SE/Est)100, less than or equal to 30%.

To compare characteristics of children who were enrolled in Medicaid FFS and those enrolled in Medicaid CMC at the time of the interview, statistical significance was evaluated using chi-square test statistics with an alpha level of 0.05.

NHIS sample weights were adjusted to account for linkage eligibility using



SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 4. Percentage of selected asthma diagnoses of children aged 0–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

model-based calibration (WTADJUST procedures) in SUDAAN (20). The adjustment effectively reweights the data to preserve the correct population totals within U.S census region, race and ethnicity, age, and sex cross-stratifications. SUDAAN release 10.0 (RTI International, Research Triangle Park, N.C.) was used to account for the complex design of the sample.

Results

Sociodemographic characteristics

- More children were enrolled in CMC Medicaid (64.4%) compared with FFS Medicaid (35.6%) (Table 1, Figure 2).
- Race and ethnicity were significantly associated with program type ($p < 0.01$). Of children enrolled in FFS, 46.8% were non-Hispanic white compared with 29.5% in CMC (Table 1, Figure 2).
- Boys and girls were distributed similarly within FFS and CMC (Table 1, Figure 2).
- No differences were seen in age group distributions between children enrolled in FFS and CMC. Approximately 42% of the children in the FFS and CMC groups were aged 0–5 years (Table 1, Figure 2).
- Differences were seen in the distribution of family income as a percentage of FPL between children enrolled in FFS and CMC ($p < 0.01$). Of children in FFS and CMC programs, 46.2% and 53.4% had family incomes under 100% FPL, respectively (Table 1, Figure 2).

Health status

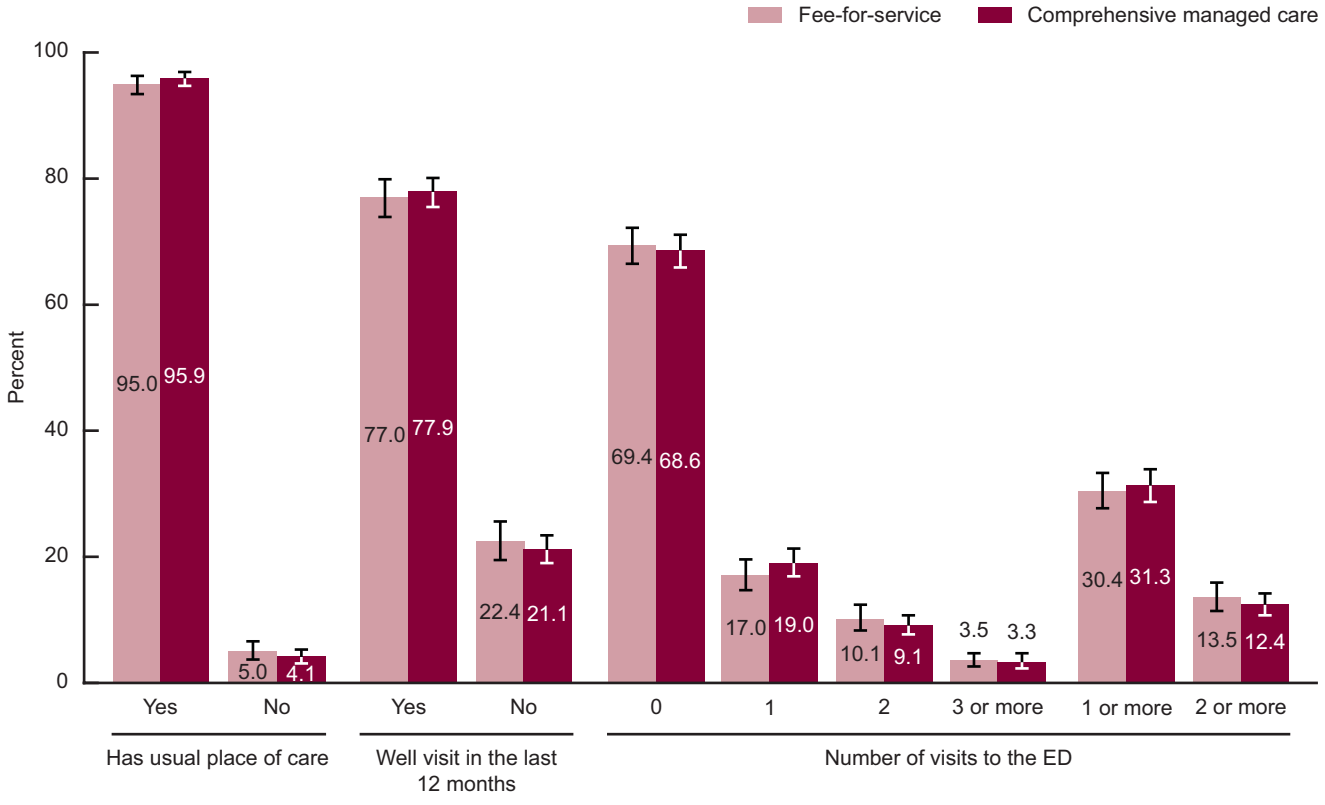
- Although the percentage of children with excellent or very good health status was higher in CMC programs, the majority of children in both programs had excellent or very good health status (Table 2, Figure 3).
- A statistically significant difference was found in the distribution of health status across the two program types ($p < 0.05$). Among children in an FFS program, 6.1% had fair or poor health status compared with 3.6% in CMC (Table 2, Figure 3).

Asthma diagnoses

- Enrollment in FFS or CMC programs was not significantly associated with ever having been diagnosed with asthma (16.2% and 16.5%, respectively) (Table 3, Figure 4).
- Having an episode of asthma within the last 12 months was not significantly associated with FFS or CMC programs (7.7% and 7.6%, respectively) (Table 3, Figure 4).
- Current asthma was not significantly associated with enrollment in either FFS or CMC programs (11.4% and 12.2%, respectively) (Table 3, Figure 4).

Access to health care and service utilization

- No difference was found between children enrolled in FFS and CMC in having a usual source of care (95.0% and 95.9%, respectively) (Table 4, Figure 5).



NOTE: ED is emergency department.
SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 5. Percentage with access to health care and utilizing services among children aged 0–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

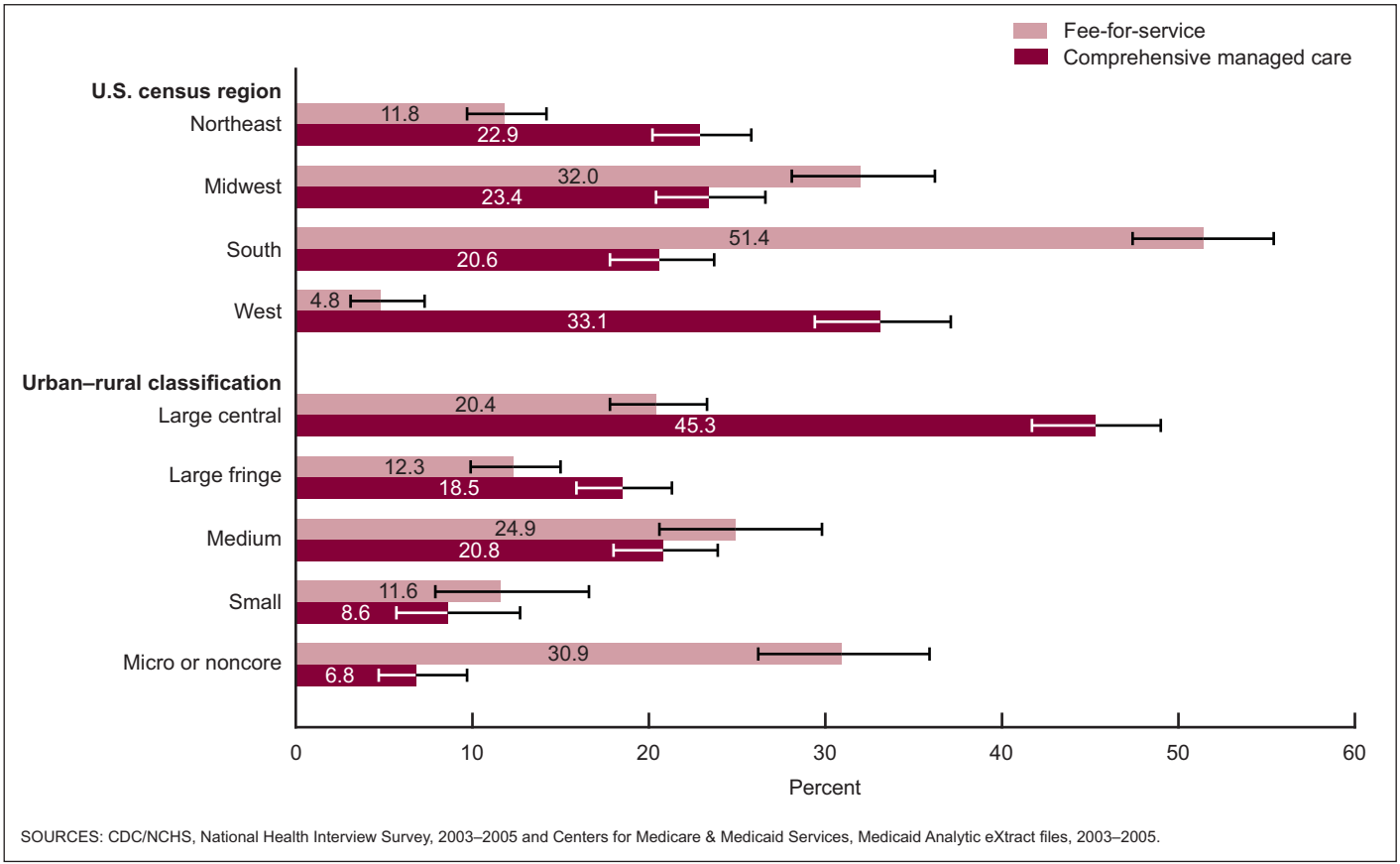
- The percentage of children who had a well-child visit in the last 12 months was similar for children in FFS (77.0%) and CMC (77.9%) (Table 4, Figure 5).
- Nearly one-third of children in the two programs had visited the ED at least once in the last year. Approximately 13.5% of children in FFS and 12.4% of children in CMC had visited the ED at least twice in the last year. Visits to the ED were not significantly different between the FFS and CMC groups (Table 4, Figure 5).

Geographic residence

- U.S. census region was significantly associated with enrollment in FFS and CMC programs ($p < 0.01$). Among children enrolled in CMC programs, 20.6% lived in the South compared with 51.4% of children in FFS programs (Table 5, Figure 6).
- Urban–rural classification was significantly associated with enrollment in FFS and CMC programs ($p < 0.01$). Forty-five percent of children in CMC programs lived in large central metro areas, while only 20.4% of children in FFS programs lived in large central metro areas (Table 5, Figure 6).

Selected diagnoses and school days missed for children aged 6–17 years

- Race and ethnicity, sex, age, and poverty level were similarly distributed in the subsample of children aged 6–17 years (Table 6) as observed in the full sample of children aged 0–17 years (Table 1).
- Learning disabilities or developmental delays were more common in children aged 6–17 years enrolled in FFS than in those in CMC programs (21.9% and 14.0%, $p < 0.01$) (Table 7, Figure 7).
- A higher percentage of children aged 6–17 years enrolled in FFS plans were diagnosed with ADHD compared with children aged 6–17 years in CMC programs (16.1% and 9.4%, $p < 0.01$) (Table 7, Figure 7).
- Of children aged 6–17 years, 12.2% in FFS plans and 8.1% in CMC programs had definite or severe difficulties related to emotions, concentration, behavior, or being able to get along with other people ($p = 0.05$) (Table 7, Figure 7).
- More than three-quarters of children aged 6–17 years enrolled in FFS plans missed at least 1 day of school in the last 12 months; however, the distribution of the number of days missed from school was not statistically significant when comparing children aged 6–17 years enrolled in FFS plans with those in CMC programs (76.6% and 69.7%, respectively, missed at least 1 day of school, $p > 0.05$) (Table 7, Figure 8).



SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 6. Percent distribution of geographic residence of children aged 0–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

Discussion

Approximately 64% of children were enrolled in a CMC program, which is consistent with reports during the time period of interest (21). This analysis revealed several key features about the sociodemographic, health, and geographic characteristics of children enrolled in Medicaid FFS plans and children enrolled in Medicaid CMC plans.

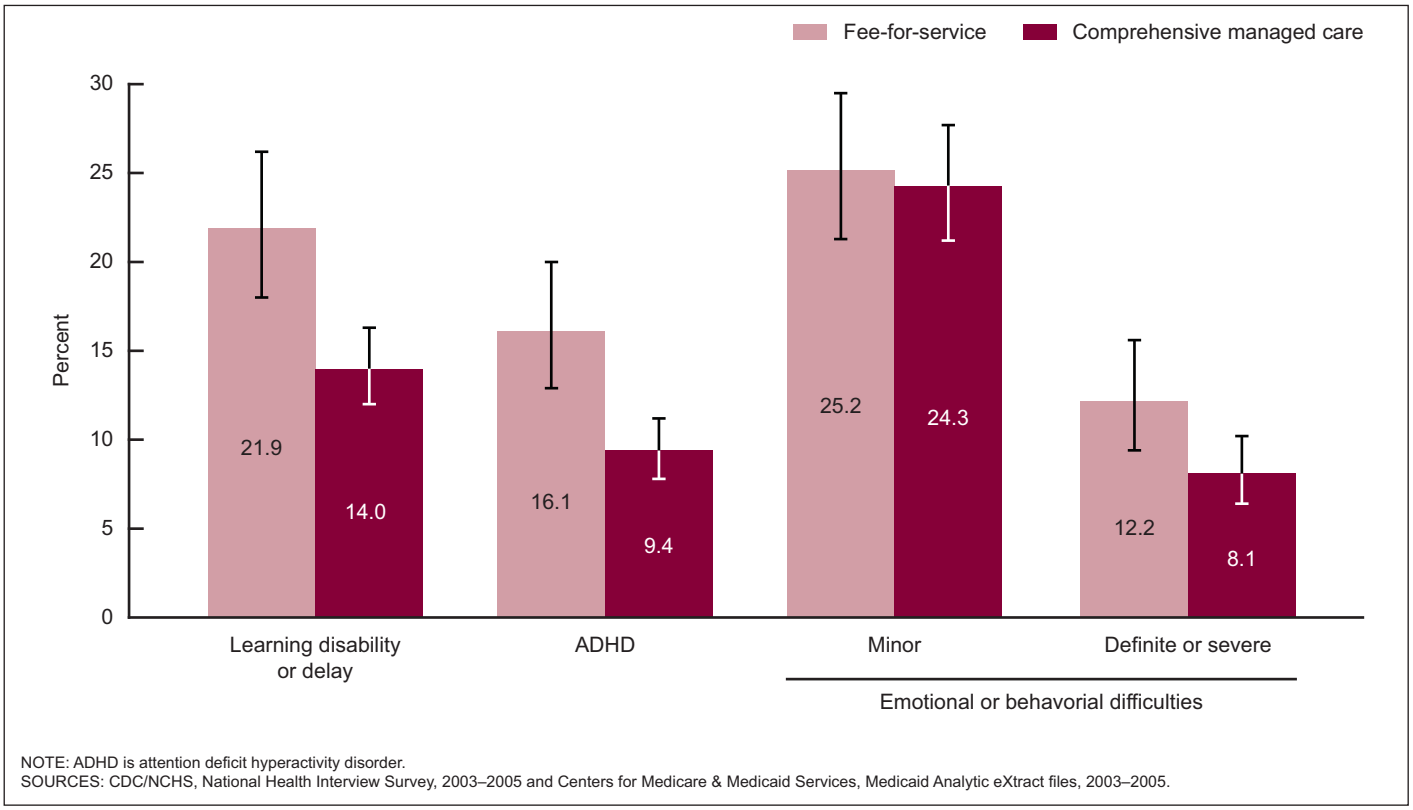
No statistically significant differences were seen in the sex and age distributions of children between programs. Statistically significant differences in the distribution of race and ethnicity and poverty status between the two plan types were observed. While non-Hispanic white children made up the largest percentage of children in FFS programs, Hispanic children made up the largest percentage of children in CMC programs. A higher percentage of children living in families with income under 100% FPL were enrolled in FFS than in CMC, and the percentage of children in families with income above 200% FPL was higher among children enrolled in CMC than in FFS.

The percentage of children ever diagnosed with asthma, having current asthma, or having had an asthma episode in the last 12 months did not differ between children enrolled in Medicaid FFS and those in Medicaid CMC plans. Outcomes related to access and utilization of health services did not differ between children enrolled in Medicaid FFS and children enrolled in Medicaid CMC plans.

Among children aged 6–17 years, the percentage with overall emotional or behavioral difficulties in FFS did not differ from the percentage in CMC. Similarly, no differences in the distribution of school days missed due to illness or injury were observed between children aged 6–17 years enrolled in FFS and in CMC. However, statistically significant differences were found in the percentages of children aged 6–17 years with learning disabilities and ADHD between those enrolled in FFS and in CMC.

Results of this analysis are not consistent with other studies that have reported statistically significant differences in access to and utilization of health services between all children in FFS and managed care programs (7–10). Some such studies were ecological in nature (8,9), others used data from a sample of Medicaid managed care recipients in a specific state (7,10), and all were conducted using data from the 1990s (7–10). However, our analysis was conducted at the person level and used a nationally representative sample of children who participated in NHIS from 2003 through 2005. Variations in Medicaid enrollment requirements and populations across the states during this time frame may explain these differences.

Significant differences were seen in the geographic distribution of children enrolled in the two types of plans by U.S. census region and rural–urban



NOTE: ADHD is attention deficit hyperactivity disorder.
SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 7. Percent distribution of selected conditions for children aged 6–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

classification. This finding is consistent with MSIS annual reports on managed care enrollment. In 2004, the rates of managed care enrollment were as low as 44% in the East North Central Census Division and as high as 80% in the Mountain Census Division of the country (21).

Several limitations of the analysis warrant discussion. First, the cross-sectional nature of the analysis does not allow inferring causal associations between enrollment plan type and sociodemographic and health conditions or characteristics of Medicaid children. Second, the data represent the population of children enrolled in Medicaid during 2003–2005; with increases in managed care in recent years (4,5), these results may not reflect current data. Third, not all children in the 2003–2005 NHIS were linkage-eligible, which may introduce bias. Although the data were reweighted to account for linkage eligibility, which may reduce bias, other factors may differ between children who are linkage-eligible and children who are not linkage-eligible that could affect the comparisons in this report. Fourth, some children experience gaps in Medicaid coverage, known as ''churning,'' by which a child may be enrolled in Medicaid one month and not enrolled the next month. While this is an important consideration when analyzing Medicaid claims, this analysis examines differences in FFS and CMC populations at the time of interview, cross-sectionally; hence, bias should not be introduced by churning.

Despite these limitations, this report provides an understanding of similarities and differences in the distributions of sociodemographic and health characteristics between children enrolled in Medicaid FFS and those enrolled in CMC. Generalization of study results based on analysis of FFS claims may depend on the outcomes examined. Claims data from children enrolled in FFS have often been used for health studies of the Medicaid population. While children in the two programs share some similarities, researchers are cautioned that some analyses may not be generalizable to all Medicaid children.

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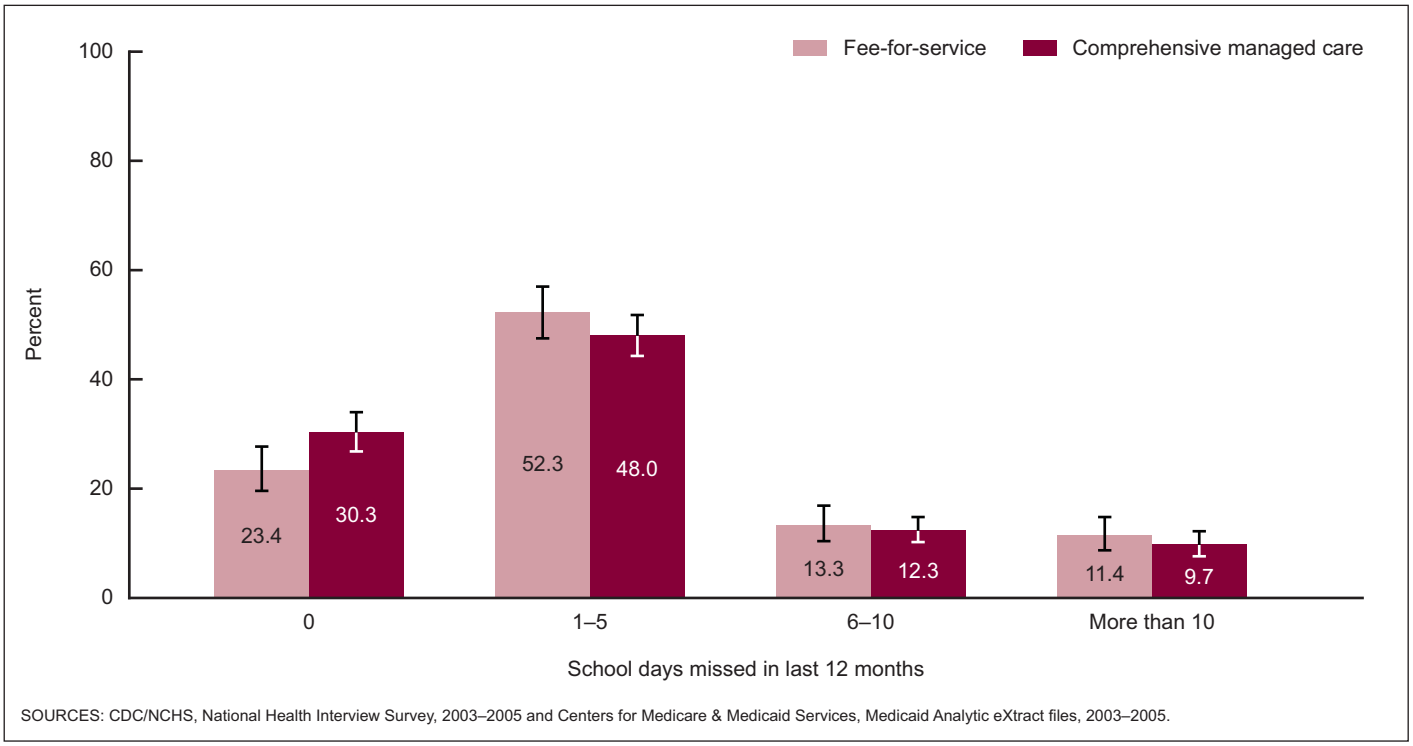

SOURCES: CDC/NCHS, National Health Interview Survey, 2003–2005 and Centers for Medicare & Medicaid Services, Medicaid Analytic eXtract files, 2003–2005.

Figure 8. Percent distribution of school days missed by children aged 6–17 years enrolled in Medicaid at time of interview, by type of Medicaid program: United States, 2003–2005

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Table 1. Unweighted sample sizes and weighted percent distributions of sociodemographic characteristics for NHIS-MAX linked children aged 0–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 1,373)	Fee-for-service Percent (95% confidence interval)	Comprehensive managed care (n = 2,289)	Comprehensive managed care Percent (95% confidence interval)
Race and ethnicity[1]				
Hispanic	447	22.5 (19.6, 25.7)	1,053	38.5 (35.4, 41.8)
Non-Hispanic white	555	46.8 (42.8, 50.9)	592	29.5 (26.5, 32.6)
Non-Hispanic black	344	28.0 (24.6, 31.7)	578	27.3 (24.2, 30.7)
All other races and ethnicities	27	2.7 (1.6, 4.5)	66	4.7 (3.4, 6.4)
Sex				
Male	671	47.8 (45.0, 50.5)	1,163	50.0 (47.5, 52.5)
Female	702	52.2 (49.5, 55.0)	1,126	50.0 (47.5, 52.5)
Age (years)				
0–5	638	41.8 (38.8, 44.8)	1,052	41.7 (39.1, 44.3)
6–11	374	31.1 (28.1, 34.3)	691	32.0 (29.4, 34.6)
12–17	361	27.1 (24.2, 30.2)	546	26.3 (24.1, 28.8)
Federal poverty level[1]				
Less than 100%	616	46.2 (42.9, 49.6)	1,135	52.4 (49.4, 55.4)
100%–199%	463	32.8 (29.5, 36.3)	753	32.8 (30.1, 35.6)
200% or more	294	20.9 (18.0, 24.2)	401	14.8 (13.0, 16.7)

[1]Chi-square p value < 0.01.

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 2. Unweighted sample sizes and weighted percent distribution of health status for NHIS-MAX linked children aged 0–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 1,373)	Fee-for-service Percent (95% confidence interval)	Comprehensive managed care (n = 2,289)	Comprehensive managed care Percent (95% confidence interval)
Health status[1]				
Excellent or very good	956	69.2 (66.5, 71.9)	1,661	72.7 (69.9, 75.4)
Good	331	24.7 (21.7, 27.9)	536	23.6 (21.2, 26.2)
Fair or poor	80	6.1 (4.7, 7.9)	86	3.6 (2.7, 4.8)

[1]Chi-square p value < 0.01.

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 3. Unweighted sample sizes and weighted percentages of selected asthma diagnoses for NHIS-MAX linked children aged 0–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 1,373)	Fee-for-service Percent (95% confidence interval)	Comprehensive managed care (n = 2,289)	Comprehensive managed care Percent (95% confidence interval)
Ever diagnosed with asthma				
Yes	217	16.2 (13.9, 18.9)	380	16.5 (14.6, 18.6)
No	1,154	83.6 (80.9, 86.0)	1,906	83.4 (81.4, 85.3)
Episode of asthma within last 12 months				
Yes	104	7.7 (6.0, 9.8)	171	7.6 (6.4, 9.1)
No	1,262	92.3 (90.2, 94.0)	2,109	92.4 (90.9, 93.6)
Current asthma				
Yes	154	11.4 (9.3, 13.9)	272	12.2 (10.4, 14.1)
No	1,210	88.6 (86.1, 90.7)	2,002	87.8 (85.9, 89.6)

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 4. Unweighted sample sizes and weighted percentages of access to health care and service utilization outcomes for NHIS-MAX linked children aged 0–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 1,373)	Fee-for-service: Percent (95% confidence interval)	Comprehensive managed care (n = 2,289)	Comprehensive managed care: Percent (95% confidence interval)
Has usual place of care				
Yes	1,290	95.0 (93.4, 96.3)	2,191	95.9 (94.7, 96.9)
No	78	5.0 (3.7, 6.6)	90	4.1 (3.1, 5.3)
Well-child visit in last year				
Yes	1,045	77.0 (73.9, 79.9)	1,785	77.9 (75.5, 80.1)
No	319	22.4 (19.5, 25.6)	484	21.1 (19.0, 23.4)
Number of visits to the ED in the last 12 months[1]				
0	916	69.4 (66.5, 72.2)	1,539	68.6 (65.9, 71.1)
1	248	17.0 (14.7, 19.6)	441	19.0 (16.9, 21.3)
2	150	10.1 (8.3, 12.4)	217	9.1 (7.7, 10.7)
3 or more	48	3.5 (2.6, 4.7)	76	3.3 (2.3, 4.7)
1 or more	446	30.4 (27.7, 33.3)	735	31.3 (28.7, 33.9)
2 or more	198	13.5 (11.4, 15.9)	294	12.4 (10.7, 14.2)

[1]ED is emergency department.

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 5. Unweighted sample sizes and weighted percentages of geographic areas for NHIS-MAX linked children aged 0–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 1,373)	Fee-for-service: Percent (95% confidence interval)	Comprehensive managed care (n = 2,289)	Comprehensive managed care: Percent (95% confidence interval)
Region[1]				
Northeast	153	11.8 (9.7, 14.2)	519	22.9 (20.2, 25.8)
Midwest	383	32.0 (28.1, 36.2)	490	23.4 (20.4, 26.6)
South	778	51.4 (47.4, 55.4)	506	20.6 (17.8, 23.7)
West	59	4.8 (3.1, 7.3)	774	33.1 (29.4, 37.1)
Urban or rural (2006 codes)[1]				
Large central metro	293	20.4 (17.8, 23.3)	1,085	45.3 (41.7, 49.0)
Large fringe metro	157	12.3 (9.9, 15.0)	383	18.5 (15.9, 21.3)
Medium metro	364	24.9 (20.6, 29.8)	475	20.8 (18.0, 23.9)
Small metro	161	11.6 (7.9, 16.6)	186	8.6 (5.7, 12.7)
Micropolitan or noncore (nonmetro)	398	30.9 (26.2, 35.9)	160	6.8 (4.7, 9.7)

[1]Chi-square p value < 0.01.

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 6. Unweighted sample sizes and weighted percentages of sociodemographic characteristics for NHIS-MAX linked children aged 6–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 735)	Fee-for-service: Percent (95% confidence interval)	Comprehensive managed care (n = 1,237)	Comprehensive managed care: Percent (95% confidence interval)
Race and ethnicity[1]				
Hispanic	214	19.9 (16.6, 23.7)	525	36.6 (32.8, 40.5)
Non-Hispanic white	299	47.3 (42.2, 52.3)	318	27.9 (24.2, 31.9)
Non-Hispanic black	207	29.8 (25.3, 34.7)	355	30.5 (26.4, 34.9)
All other races and ethnicities	15	3.0 (1.5, 6.0)	39	5.0 (3.3, 7.5)
Sex				
Male	369	49.3 (45.3, 53.3)	621	49.4 (46.0, 52.8)
Female	366	50.7 (46.7, 54.7)	616	50.6 (47.2, 54.0)
Age (years)				
6–11	374	53.4 (48.8, 58.0)	691	54.8 (51.2, 58.4)
12–17	361	46.6 (42.0, 51.2)	546	45.2 (41.6, 48.8)
Federal poverty level[1]				
Less than 100%	336	46.1 (41.3, 50.9)	633	54.3 (50.1, 58.4)
100%–199%	241	31.7 (27.5, 36.1)	403	32.1 (28.5, 36.0)
200% or more	158	22.2 (18.5, 26.5)	201	13.6 (11.5, 16.0)

[1]Chi-square p value < 0.01.

NOTES: NHIS is National Health Interview Survey. MAX is Medicaid Analytic eXtract.

Table 7. Unweighted sample sizes and weighted percentages of selected conditions for NHIS-MAX linked children aged 6–17 years at time of NHIS interview (2003–2005), by type of Medicaid program

Characteristic	Fee-for-service (n = 735)	Fee-for-service Percent (95% confidence interval)	Comprehensive managed care (n = 1,237)	Comprehensive managed care Percent (95% confidence interval)
Learning disability or developmental delay[1]				
Yes	157	21.9 (18.0, 26.2)	187	14.0 (12.0, 16.3)
No	575	78.1 (73.8, 82.0)	1,048	86.0 (83.7, 88.0)
ADHD[1,2]				
Yes	120	16.1 (12.9, 20.0)	119	9.4 (7.8, 11.2)
No	612	83.5 (79.6, 86.8)	1,117	90.6 (88.8, 92.2)
Emotional or behavioral difficulties				
None	458	62.6 (58.3, 66.8)	816	67.6 (64.1, 70.9)
Minor	172	25.2 (21.3, 29.5)	302	24.3 (21.2, 27.7)
Definite or severe	91	12.2 (9.4, 15.6)	101	8.1 (6.4, 10.2)
School days missed within last 12 months				
0	182	23.4 (19.6, 27.7)	343	30.3 (26.8, 34.0)
1–5	363	52.3 (47.5, 57.0)	573	48.0 (44.3, 51.8)
6–10	93	13.3 (10.4, 16.9)	176	12.3 (10.2, 14.8)
More than 10	82	11.4 (8.7, 14.8)	119	9.7 (7.6, 12.2)

[1]Chi-square p value < 0.05.

[2]ADHD is attention deficit hyperactivity disorder.

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