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Missouri MC+ Managed Care Program

External Quality Review

Report of Findings

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BLL: Blood lead level

BHO: Behavioral Health Management Organization

BMO: Benefit Management Organization

CAHPS: Consumer Assessment of Health Plans Survey

CDC: Centers for Disease Control and Prevention

CHCS: Center for Health Care Strategies

CHIME: Community Health Information Management and Epidemiology, Missouri Department of Health and Senior Services

CI: Confidence Interval

CMS: Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services

CPT: Current Procedural Terminology

CSTAR: Comprehensive Substance Treatment and Rehabilitation

CY: Calendar Year

DCN: Department Control Number

DESE: Missouri Department of Elementary and Secondary Education

DFS: Formerly the Division of Family Services, Missouri Department of Social Services, now the Family Support Division and the Children's Division

DHHS: U.S. Department of Health and Human Services

DHSS: Missouri Department of Health and Senior Services

DMH: Missouri Department of Mental Health

DMS: Division of Medical Services, Missouri Department of Social Services

DSS: Missouri Department of Social Services

DYS: Division of Youth Services, Missouri Department of Social Services

EBL[1]: Elevated blood lead level

EPSDT: Early, Periodic Screening, Diagnosis and Treatment

EQR: External Quality Review

EQRO: External Quality Review Organization

HCY: Healthy Children and Youth Program, the Missouri Medicaid EPSDT program

HEDIS: Health Plan Employer Data and Information Set, National Committee on Quality Assurance

HIPAA: Health Insurance Portability and Accountability Act

[1] http://www.dhss.state.mo.us/ChildhoodLead/GLACMtgprogramhistory_files/frame.htm

ICD-9: International Classification of Diseases, Ninth Revision, Clinical Modification, World Health Organization

IRR: Interrater Reliability

ISCA: Information Systems Capability Assessment

LPHA: Local Public Health Agency

LRA: HCY Lead Risk Assessment Guide

MCH: Maternal and Child Health

MCO: MC+ Managed Care Organization

MDI: Missouri Department of Insurance

MMIS: Medicaid Management Information System

N.S.: Not significant

NDC: National Drug Code

PCP: Primary Care Physician

PIHP: Prepaid Inpatient Health Plan

PIP: Performance Improvement Project

PSI: Policy Studies, Inc., Missouri Medicaid Enrollment Vendor

QA & I: Quality Assessment and Improvement Advisory Group, Division of Medical Services

QI: Quality Improvement

SHCN: Special Health Care Needs

UM: Utilization Management

WIC: Women, Infants and Children Program

EXECUTIVE SUMMARY

As of 2003, the MC+ Managed Care Program has been in operation in the Eastern, Central, and Western Regions of Missouri for nine years. This report constitutes the findings, conclusions, and recommendations of the External Quality Review (EQR) of the MC+ Managed Care Program for the 2003 calendar year. The 2003 evaluation year represented a transition for EQR activities, from conducting focused studies and compliance reviews of the MC+ Managed Care Organizations (MCOs), to preparation of the MCOs for the implementation of the mandatory EQR protocols issued by the Centers for Medicare and Medicaid Services (CMS) under the rule for External Quality Review[4].

The present review summarizes program changes and progress made in the past year; presents the findings of two focused studies; and describes the implementation of aspects of two of the mandatory EQR protocols. The two focused studies were *Childhood Lead Poisoning* and *Provider Network Access*. The mandatory protocols, *Validating Performance Improvement Projects* and *Validating Encounter Data* were also conducted, to facilitate MCO understanding of the requirements promulgated by the protocols and prepare for their implementation for the 2004 EQR. The following summarizes the major conclusions and recommendations from this review. Objectives, technical methods, findings, conclusions, and recommendations for each of the focused studies and protocols are discussed in detail in the body of the report.

Summary and Conclusions

Quality Improvement Strategy and Progress

Missouri's MC+ Managed Care Program continues to grow in enrollment and now serves almost half of the children and families enrolled in Medicaid. The State has been implementing changes that will prepare Missouri for the new CMS protocols for External Quality Review and providing leadership to the MCOs regarding these changes.

The State has made infrastructure changes that promoted smoother operations for submitting encounter submission, detecting fraud and abuse, tracking enrollment, generating administrative data for

[4] (Federal Register, Vol. 68, No. 16, January 24, 2003).

decision making, and assessing MCO contract compliance. The State has assisted the MCOs in meeting compliance review standards for Enrollee Rights by reviewing and standardizing MC+ Managed Care Member Handbooks, developing consistency in grievance systems, and reviewing the Information System Capabilities Assessment (ISCA) reports. The State has provided for ongoing communication with the MCOs through scheduled face-to-face and conference call meetings. The State developed a Performance Improvement Project (PIP) tool for use by the MCOs that incorporates CMS standards and State requirements.

Enrollment and Service Utilization

Enrollment in the MC+ Managed Care Program increased by 5.96% over the previous year (437,624 MC+ Managed Care Members), with an increase in the rate of all encounter claim types (inpatient, medical, dental, home health, outpatient hospital, and pharmacy) per 1,000 MC+ Managed Care Members. This increase can be due to improved encounter claims submission processes or improved access to care. The greatest increase in the rate of encounter claims was observed for medical encounter claims (103%), while the smallest increase was for dental services (50%).

Inpatient services primarily consisted of treatment for childbirth (38.8%), pregnancy-related complications (12.3%), and newborn care (34.7%). Outpatient services (including medical, dental, home health, outpatient hospital claim types) were primarily delivered for preventive care (30.6%), pregnancy and childbirth (19.4%), acute respiratory conditions (19.6%), and dental care (15.5%).

Children who are MC+ Managed Care Members have better access to annual dental visits (11.8%) than their Fee-for-Service counterparts (.9%), as evidenced by the percent of MC+ Managed Care Members that received an annual dental visit and by higher rates of encounter claims for preventive dental visits among MC+ Managed Care Members. According to the Health Employer Data Information Set (HEDIS) indicators, annual dental examination rates for children enrolled in the MC+ Managed Care Program remained stable over the past three years. Although four of the seven MCOs obtained an average or better rating on this HEDIS indicator, the rate remained lower than DMS recommendations during CY2002 (ranging from 19.9% to 36.3%, with an average of 29.2%). Children who are MC+ Managed Care Members were less likely than children enrolled in the MC+ Fee-for-Service Program to have encounter claims for gum disease, extractions, and dentures. The observed differences between the MC+ Managed Care and Fee-for-Service groups may be due to access, as children who were MC+ Fee-for-Service recipients reside in more rural areas than children enrolled in MC+ Managed Care.

MC+ Managed Care Program MCOs continue to improve access to mental health services as evidenced by increases in mental health penetration rates as well as rates of outpatient visits; inpatient mental health and substance abuse admissions; and rates of ambulatory follow-up after psychiatric hospitalization. The range in penetration rates for mental health services (4.6% to 9.9%) was variable across MCOs. The rates of penetration in the Central and Western Regions were higher than those in the Eastern Region, indicating better access to mental health services in these Regions. National rates of penetration in mental health services for children enrolled in Medicaid are more consistent with the 9.0% mental health penetration rates demonstrated in the Central and Western Regions.

Most (six of seven) of the MCOs have increased the access to mental health outpatient visits per 1,000 MC+ Managed Care Members. This could be a function of increased penetration rates; increased intensity or duration of services provided to MC+ Managed Care Members; or both. There was wide variability across Regions and MCOs in the rate of outpatient visits.

Inpatient mental health admission rates declined from 2001 to 2002 for two MCOs (Mercy Health Plan, Missouri Care). Interestingly, the rates of outpatient visits for these two MCOs showed the greatest increases from 2001 to 2002, and the highest rates during 2002. Mercy Health Plan also demonstrated a reduction in the average length of stay for inpatient admissions. This pattern, along with the increased rates of ambulatory follow-up after psychiatric hospitalization suggest that increased access to outpatient services has contributed to the reduction in the use of inpatient mental health services under the management of Unity Managed Mental Health Services.

A number of MCOs were able to improve their rates of ambulatory follow-up after discharge from psychiatric hospitalization from 2001 to 2002. However, the rates of ambulatory follow-up at seven days and thirty days were somewhat lower than the available national benchmarks for children enrolled in Medicaid.

Inpatient substance abuse admissions in days per 1,000 MC+ Managed Care Members showed some variability in access for substance abuse admissions. This was particularly evident in the Western Region, with lower rates of substance abuse admissions per 1,000 MC+ Managed Care Members. This may be an area for the Western Region MCOs to collaborate in identifying potential barriers to access and methods of addressing the barriers.

Mental health case management records contained good documentation of contacts with inpatient providers, MC+ Managed Care Members, primary care providers, and referral sources. When treatment plans were present, they indicated coordination of care among providers, enrollee participation, and periodic re-assessment of enrollee conditions. Case management activities primarily consisted of standard utilization management and documentation of referrals.

The Maternal and Child Health Indicators provide a mechanism for examining trends and the significance of trends among the MC+ Managed Care Program Member, MC+ Fee-for-Service recipient, and the Non-Medicaid (in the MC+ Managed Care Program Regions) groups of women and children in Missouri. The comparison of trends within groups over time provides some control over a variety of demographic variables and allows for examining progress over time within groups. Eight maternal/infant health and four child health indicators that are considered important indices of the impact and progress of the MC+ Managed Care Program were examined.

In the CY1997-CY2002 comparison, the MC+ Managed Care Program group showed significant gains on four of the eight maternal/infant indicators. In the present analysis, the significant gains were maintained with the addition of Birth Spacing Less than 18 months (a total of five of the eight indicators). For the CY1997-CY2003 comparison, the MC+ Managed Care Program group continued to demonstrate significantly greater rates of change over time than both the MC+ Fee-for-Service recipient and Non-Medicaid groups on:

- Prenatal Care During the First Trimester
- Birth Spacing Less than 18 Months
- Births to Mothers Younger than 18 Years

All groups showed significant changes in the C-Section rate and the rate of pregnant women enrolled in the Women, Infants, and Children (WIC) Program, in the negative direction. Given the national and statewide trends in C-Section rates, it will be challenging for MCOs to directly impact patient choice and provider practice. However, the continued collaboration and coordination with local public health agencies (LPHAs) holds promise for improving participation in the WIC Program. An examination of the barriers, needs, and perceptions of patients and providers may provide information for education and outreach efforts.

With regard to the four child health indicators, similar trends were observed in the CY1997-CY2001 and the CY1997-CY2002 comparisons for asthma emergency room visits for children four to 17 years of age, and asthma admissions under age 18 years for the MC+ Managed Care Program and Non-Medicaid groups. The MC+ Managed Care Program group showed significantly greater improvement over time than the Non-Medicaid group on all four of the child health indicators:

- Preventable Hospitalizations Under Age 18
- Emergency Room Visits Under Age 18
- Asthma Emergency Room Visits, 4 – 17 years of age
- Asthma Admissions under age 18 years

Performance Improvement Projects

It is clear that MCOs are implementing a number of quality improvement activities to address key issues of enrollee needs and outcomes. The number of Performance Improvement Projects (PIPs) meeting specific criteria developed by the CMS across MCOs was examined. The MCOs were best able to identify broad spectrums of key aspects of enrollee care and services (80.0%); identify objective, clearly defined, and measurable indicators (75.0%); select topics based on data from aspects of enrollee needs, care and services (70.3%); clearly define the enrollees to whom the study question applies (66.7%); and clearly specify the sources of data (63.0%).

Areas which were more challenging for the MCOs in defining and conducting PIPs included: sampling (32.0%); clearly stating the study question (29.6%); conducting statistical analysis as a basis for concluding whether the results of the intervention accounted for change (27.3%); identifying initial and repeat measures; and identifying statistical significance of the findings and factors that need to either be controlled or considered in interpreting results (25.0%). This review of PIPs was complicated by the fact that the information submitted for review was difficult to evaluate based on limited or no narrative; or extensive checklists that were incomplete or presented repetitive information without providing a complete picture of a PIP. Also, it appears that MCOs have difficulty identifying the distinction between a PIP and a quality improvement process; and the need to clearly document questions, the nature and extent of interventions, and to conduct statistical comparisons on targeted processes or outcomes. It appeared that many of the PIPs were completed as normal monitoring and tracking of utilization management and services, with relatively little planning and prospective design of a study targeting a particular clinical or non-clinical process or outcome.

Childhood Lead Poisoning

Based on medical record documentation, the rates of verbal lead screening for children under six years of age (48%) and the rates of blood lead level (BLL) testing for children at 12 and 24 months of age (51.5%, and 38.7%, respectively) continued to improve for children enrolled in the MC+ Managed Care Program. The rate of BLL testing among MC+ Managed Care Members between six months and six years of age who had been seen by a physician was two to three times the rate for the general population of children in the same age range in the MC+ Managed Care Regions. The HCY Lead Risk Assessment Guide (LRA) was administered 73.9% of the time. Examination of lead case management records and medical records on a subsample of cases found that 15.7% of MC+ Managed Care Members would not otherwise have been identified as having lead poisoning based on the documentation in the medical record, suggesting that the process of sharing information on the BLLs of children enrolled in the MC+ Managed Care Program with MCOs resulted in identifying children in need of case management. Case management records also contained a greater number of repeat BLLs than did medical records, indicating better tracking and management of care. The medical records of children in lead case management also contained documentation of case management and care coordination by up to four entities (the physician, local public health agencies, and other, unspecified sources). However, MC+ Managed Care Members receiving case management for lead poisoning did not always have documentation in their medical record of elevated blood lead levels or of MCO case management for lead poisoning.

Although rates of verbal lead screening and BLL were improved, the results of the *Childhood Lead Poisoning Focused Study* identified some areas for improvement. MC+ Managed Care Members who were 24 months of age were least likely to be tested and most likely to have an elevated blood lead level (EBL). The most frequent risk factor identified on the verbal lead screen was that the child had never been tested. Others included the child living in a house built before 1950, having access to chipped paint, and eating non-food substances. Twenty-four months is also the age at which children are more likely to eat non-food substances, such as chipped paint. All of these factors combined indicate the need to view 24-months of age as a critical time for intervening with a high risk population for lead poisoning.

Provider Network Access

MCOs continue to experience fluctuation in their network provider panels, making this an area for continual monitoring and improvement. All MCOs have considerably increased their panels of behavioral health providers and should experience improved access to and penetration for behavioral health services.

The current method of monitoring provider network adequacy examines the number and distance of primary care providers, medical specialists, facilities, behavioral health providers, and ancillary service providers. This analysis is conducted for each MCO by county, and no longer includes dental providers due to a change in State regulation. Several challenges to monitoring provider network adequacy include provider turnover and multiple provider locations that may all be closed to additional MC+ Managed Care Members. MCOs have conducted provider access studies by assessing after hours availability and next appointment availability. Additional indices of provider network adequacy will need to be monitored quarterly and annually to ensure access to care and availability of providers for MC+ Managed Care Members.

Encounter Data Validation

The State has continuously worked with MCOs to improve the process of encounter claims submission. The main barrier to encounter claims submission is that payment is based on a per member per month capitated payment mechanism rather than a fee-for-service arrangement. Several MCOs have moved from subcapitating provider groups to reimbursing them on a fee-for-service basis to improve their claim submissions to the MCO and consequently, the MCOs' claim submissions to the State. As noted earlier, the rate of encounters per 1,000 MC+ Managed Care Members for all claim types has increased. This may be due to increased access, or increased submission of encounter claims. As with other states, the DMS developed a corrective action plan approved by CMS to improve their ability to use State encounter claim data to develop capitation rates.

Two levels of State encounter claims validation were conducted: macrovalidation and microvalidation. The macrovalidation of encounter claims examined the accuracy and completeness of particular fields in the State encounter claims database that consist of encounter claims accepted from the MCOs. Completeness refers to the presence or absence of data in a particular field, and accuracy refers to the data type (numeric, alpha, or string) and size (length of data in the field). One limitation of the macrovalidation analysis is that it was conducted on the State encounter claims database and did not

examine the extent to which the State encounter claims database reflected the number or volume of claims actually submitted and subsequently rejected by the State encounter claims database due to system edits and MCO encounter claim errors. The microvalidation process involves the comparison of individual encounters to medical records (Center for Health Program Development and Management, 2003).

Using the macrovalidation, it was found that the quality of encounter claim data fields were complete, accurate, and in the correct format 100% of the time for most of the required fields in the inpatient, outpatient, and pharmacy claim file layouts. The most notable exception was for the claim type field in the outpatient file layout (which includes medical, dental, home health, outpatient hospital claim types), which was accurate 92.4% of the time statewide. Exceptions to the 100% rate of accuracy were noted within MCOs on the presence of any information about the prescribing provider number in the pharmacy encounter claims (64.4% accuracy statewide) and the duplication of the first diagnosis field in subsequent diagnosis fields in the inpatient claims database (86.7% to 88.9% accuracy statewide).

In the outpatient encounter claim file layout (including dental, medical, home health, and outpatient hospital claim types), all MCOs had lower than 100% rates of accuracy for the type of information (alpha string) in the claim type field. The results were calculated for HealthCare USA (92.9% accuracy in the Eastern Region; 93.9% accuracy in the Central Region; and 93.4% in the Western Region), Mercy Health Plan (91.6% accuracy), Family Heath Partners (95.9% accuracy), FirstGuard (90.6% accuracy), Blue Advantage Plus (90.1%), and Community Care Plus (91.2%).

In the pharmacy encounter claim file, the presence of the prescribing provider number was 100% for HealthCare USA (Eastern and Central Regions), Family Health Partners, and Blue Advantage Plus. The statewide rate was primarily accounted for by several MCOs that had no information in this field (Community Care Plus, FirstGuard, Mercy Health Plan, Missouri Care). HealthCare USA in the Western Region had a rate of 99.8% completion of this field.

The duplication of the first diagnosis fields in the second through fifth diagnosis fields in the inpatient and outpatient encounter claim file layouts ranged across MCOs (88.67% to 94.9% accuracy).

Microvalidation examined whether services documented in the medical record were represented by an encounter claim present in the State encounter claim database; and whether an encounter claim submission was supported by documentation of services in the medical record. Instances in which the

medical record and the State encounter claim matched were considered "matches" and were included in the "match rate". When there was a service documented in the medical record but not found in the State encounter claim database, this was considered an "omission" error (i.e., a claim omitted from the State encounter claim database) and when there was no supporting documentation in the medical record of the encounter found in the State encounter claims database, this was classified as a "commission" error. The State outpatient encounter claim file was validated against medical record documentation for encounter claims of BLL testing on children at 12 and 24 months of age. This was conducted on a convenience sample of cases randomly and proportionally selected for the *Lead Focused Study*. Both the medical record and the encounter claim files documented a similar number of cases with BLL testing at 12- and 24-months of age; and a similar number of encounters for BLL testing in the two age groups. However, the rate of encounter claims with corresponding medical record documentation of a BLL test for a specific child on the date of the claim was low (39.7% for 12-month-olds, and 27.2% for 24-month-olds). An error analysis found that for the 12-month-olds, the number of omission errors exceeded the number of commission errors. Thus, there was a higher frequency of service provision not represented in the State encounter claims database than the frequency of State encounter claims that were not documented in the medical record. The rates of omission and commission errors were similar for the 24-month age group. These findings indicate that the State encounter claims database is not a valid or reliable indicator of BLL testing. This study examined only the BLL test claims, and cannot be used to generalize to other claim types. The match rates are likely lower for this claim than for other claims due to the nature of BLL testing. A number of LPHAs conduct BLL testing. However, they have had less experience than traditional providers in submitting encounter claims for their services. In the past two years, MCOs have been increasingly contracting with LPHAs and encouraging them to submit encounter claims for all their services. Another reason for the poor match rate may also be the use of capillary sampling as a method of BLL. This is a relatively new method used by providers who do not conduct venipuncture in their offices, and they may not be as accustomed to billing for this service.

Recommendations

1. The External Quality Review Organization (EQRO) recommends further study to assess MCO interventions to improve the rates of annual preventive dental visits for child MC+ Managed Care Members. Specific indices of access to dental care should be developed and monitored on at least an annual, and if possible, a quarterly basis. Many MCO vendors produce network adequacy analyses for the MCOs as part of their oversight processes. Obtaining and compiling this information as well as other access indices (e.g., time until appointment, consumer satisfaction) from vendors for MC+ Managed Care Members on an MCO or regional basis for review by the Quality Assessment and Improvement (QA & I) Advisory Group and/or DMS is recommended. There are also HEDIS indicators for annual dental visits that may be used annually to monitor access to dental care for children.
2. It is recommended that MCOs and Behavioral Health Organizations (BHOs) review their case management processes to determine the extent to which they are in accord with State and federal compliance guidelines. MCOs should audit case management records as part of their subcontractor oversight and quality improvement processes to ensure that 1) measurable, objective treatment plans are present and updated; 2) treatment plan goals are being met; 3) case management continues following psychiatric hospitalization, with appropriate treatment planning for outpatient care; and 4) mental health assessments are being documented.
3. Given the lower than national rates of seven- and 30-day follow-up after discharge from a psychiatric admission, it is recommended that MCOs direct their efforts toward improving these follow-up rates. This is an area for a clinical performance improvement project.
4. The *Maternal and Child Health Trends Report* provides the primary source of data for tracking and trending changes in important public health indicators for the MC+ Managed Care Program and for testing statistical significance of changes over time. They are used for setting priorities each year, and in providing regional level data to MCOs. Thus, it is recommended that data for these indicators continue to be made available by the Department of Health and Senior Services (DHSS) to the Division of Medical Services (DMS) as soon as it is available; and that the Maternal and Child Health Indicators for the MC+ Managed Care Program Member, Non-Medicaid, and Fee-for-Service recipient groups continue to be used by DMS for tracking the impact of the MC+ Managed Care Program.
5. The rate of WIC participation should be targeted for improvement by MCOs.
6. At the time of this review, MCOs were not required to conduct clinical or non-clinical PIPs on uniform topics. The State may wish to consider the advantages and disadvantages of requiring a PIP

that is applied in a standard manner across all MCOs. Another option would be to identify two PIPs for review, one PIP that would be the same across MCOs, and one PIP that would be chosen by the MCO for continuation from 2003 into 2004. Examining individual MCO PIPs for common outcomes will provide an opportunity to test various interventions and identify best practices.

7. It is recommended that MCOs continue to include Quality Improvement (QI) & Utilization Management (UM) staff in the design, development and implementation of PIPs, as well as individuals with expertise in data processing/management; research methodology and design; and statistical analysis.
8. MCOs will need to more clearly follow standard research and quality improvement methodology and design for developing, planning, implementing, and analyzing performance improvement projects. To implement a successful PIP, the MCO may have to shift existing resources, add targeted resources, include educational efforts to clients and providers, and change policies and procedures.
9. It is recommended that MCO QI Directors and staff participate in training specific to the planning and implementation of PIPs. During the site visits, several MCOs expressed interest in technical assistance and training in this area. A statewide workshop which provides hands-on experience for developing a PIP problem statement, methodology, data collection procedures, and analyses is recommended. This may also be an area of focus for the Maternal and Child Health Subgroup. Presentations on available public health data collected by state agencies and the potential use of that data could be incorporated into routine meetings.
10. The CMS protocols for the conducting and validating PIPs provide succinct and clear outlines for planning and reporting the findings of PIPs. It is highly recommended that MCOs consider these items when conducting PIPs.
11. The rate of follow-up of positive verbal screens with a capillary sample or blood lead level test should be targeted for improvement. There are a number of reasons for the low rate found in the present study (29 of 273 cases; 11%), including documentation in the medical record, the reported use of maternal identification numbers at laboratories, and a lag in the amount of time between the lab test and the time the information is provided to the MCOs. The finding that 15.6% of cases with elevated blood lead levels were not documented in the medical record also indicates a need for better information sharing and/or documentation with primary care providers. A non-clinical performance improvement project aimed at identifying and targeting the sources of documentation and flow of information regarding blood lead testing is recommended.
12. There are a number of State-mandated forms that are required to be completed by providers at well-child (e.g., HCY, LRA) and prenatal care visits (Pregnancy Risk Assessment form). The State

and MCOs have invested substantial resources into developing, refining, and monitoring the use of these forms. While the intent is to provide documentation of care of MC+ Managed Care Members, there are consistently low rates of use of these forms. One possible reason is that the comprehensiveness of the forms is considered too complex and burdensome to providers, especially when they must complete one or more of them at one visit. The possibility of developing brief and simple checklists in which the patients or caregivers complete at least a portion of the form at each visit, with review and follow-up items completed by the provider or staff (e.g., physicians assistant or nurse practitioner) should be considered. A clinical performance improvement project could test the efficacy of using such checklists in a large provider practice by examining the rates of blood lead screening and testing prior to and following implementation.

13. The administration of verbal lead screening items can be incorporated into the baseline health assessment, new MC+ Managed Care Member welcome calls, and provider intake or check-in paperwork at the time of a visit. All eight, or a subset of the eight items could be administered to caregivers of children less than six years of age to identify children in need of testing.
14. Blood lead level testing for children 24 months of age should be targeted for improvement given the higher rates of EBLs and greater risk factors in this age group.
15. MCOs should continue to educate providers and MC+ Managed Care Members about the higher rates of lead poisoning and the increasing number of risk factors in the MC+ Managed Care Member population.
16. Lead case management should focus on documenting the source of lead exposure, whether siblings have been exposed, and addressing family psychosocial needs especially during abatement. Communication with the PCP and LPHAs in coordinating care should also be targeted for improvement.
17. Access to providers should continue to be monitored at least annually by the State and MCOs through the submissions to the Missouri Department of Insurance (MDI), with reporting to the MDI of major network changes. Changes should be reviewed regularly by the DMS QI and Contract Compliance staff as well.
18. MCOs should continue to monitor after hours, emergency, and next appointment availability for providers. A statewide non-clinical performance improvement project could focus on the availability of specific types of providers.
19. The State and MCOs should not rely solely on the annual network adequacy rates for assuring network adequacy or access to healthcare services. Multiple indices and frequent evaluation of provider access to MC+ Managed Care Members should be monitored on at least a quarterly basis. This is especially important for some of the specialty providers such as behavioral health and dental

providers (who are no longer included in the MDI annual provider network analyses). Indicators that can be examined on a quarterly basis for MCOs as well as their dental and behavioral health vendors include: 1) Net gain/loss of providers, by specialty; 2) Proportion of closed panels; and 3) Provider:Member ratios. These are routinely tracked by MCOs as internal quality assurance mechanisms to facilitate provider credentialing and compliance monitoring and can be applied to the monitoring of network access.

20. Other indicators that can be examined annually (perhaps as an outcome of a statewide non-clinical performance improvement project) include HEDIS indices of access to care and Consumer Assessment of Health Plans Survey (CAHPS) composite and item scores. Although these indicators are provided and examined in separate reports of their respective indicator systems, they should be compiled and used specifically to evaluate the need for additional providers. National and commercial benchmarks should be used when available. Indicators of access to routine care (well visits, annual dental visits), the ability to access care when it is needed, and the ability to access follow-up care (after mental health hospitalization) are some examples of indicators that may reveal provider network issues.
21. It is recommended that a task force of representatives from MCOs be convened to develop and obtain consensus on quarterly indicators of access, availability, and number of providers accepting MC+ Managed Care Members. The data can be compiled and reviewed annually and quarterly.
22. Analysis of encounter claims data should be limited to those fields that have met threshold levels of accuracy. The claim type field in the outpatient encounter claim file layout (including the medical, dental, home health, and outpatient hospital claim types), the prescribing provider number field in the pharmacy claim file layout, and the second through fifth diagnosis fields in the inpatient encounter claim file layout should not be used until further improvement is made.
23. It is recommended that the State establish thresholds for encounter claim field completeness and accuracy, investigate reasons for incompleteness and inaccuracy with the MCOs, and develop corrective action plans for improving the quality of encounter claim submissions to threshold levels.
24. The State should use the analysis of encounter claims validation as a baseline for future analyses on the rate of omissions and commissions in encounter claim submission for BLL testing.
25. In collaboration with the MCOs, the possible reasons for the low rate of encounter claim matches should be explored to improve the process of BLL testing and encounter claim submission for BLL testing by providers and LPHAs. This should also be done in collaboration with the Department of Health and Senior Services, which monitors the performance of the LPHAs.

BACKGROUND AND INTRODUCTION

The United States Department of Health and Human Services (DHHS), Centers for Medicare and Medicaid Services (CMS) requires an annual, independent external evaluation by a certified entity referred to as an External Quality Review Organization (EQRO). External Quality Review is the analysis and evaluation by an approved EQRO of aggregate information on quality, timeliness, and access to health care services that a Managed Care Organization (MCO) and their contractors furnish to recipients of Medicaid managed healthcare. The CMS regulations, 42 CFR Parts 433 and 438; Medicaid Program, External Quality Review of Medicaid Managed Care Organizations specify the requirements of States implementing Medicaid Managed Care programs. The CMS Final Rule of January 24, 2003 describes the mandatory and optional activities of an External Quality Review Organization (DHSS, 2003a).

For Missouri's MC+ Managed Care Program, the CY2003 EQR year is considered a transition year toward the full implementation of the protocols for the CY2004 review year. The Division of Medical Services (DMS) has introduced the protocols to the MCOs, provided guidance and technical assistance, and identified areas for improvement. BHC Inc., as the EQRO for Missouri, also participated in weekly technical assistance teleconferences with CMS and DMS. The DMS also began implementing the Information Systems Capability Assessment (ISCA) for each MCO.

In conducting the EQR for CY2003, some of the mandatory and one of the optional protocols were used as guidelines for implementing the full protocols in CY2004. The protocol for *Monitoring Medicaid Managed Care Organizations and Prepaid Inpatient Health Plans* was used for document review, development of case management record review criteria, and site visits. The protocol for *Validating Performance Improvement Projects (PIPs)* was used to review available PIPs submitted by MCOs. Finally, the protocol for *Validating Encounter Data* was applied to a convenience sample of medical records chosen for a focused study.

The present report is organized by topic and studies, with objectives, data sources, technical methods, conclusions, and recommendations described in each section. The first section describes changes in the MC+ Managed Care Program during CY2003. The second section presents descriptive data on enrollment, service utilization, health and mental health indicators, and mental health case management processes. The third section presents findings from the review of Performance Improvement Projects

(PIPs). The fourth and fifth sections represent the two focused studies conducted: *Childhood Lead Poisoning*, and *Provider Network Access.* The final section is the *Encounter Data Validation Study* examining the completeness, accuracy, and validity of the encounter claims database fields for CY2003. Statewide, regional, and MCO level data are presented as available and appropriate.

SECTION 1. PROGRAM CHANGES

Service Area

All MCOs operating in CY2002 continued to participate in the MC+ Managed Care Program during CY2003, with a total of seven MCOs providing healthcare services to MC+ Managed Care Members. Mercy Health Plan, HealthCare USA, and Community Care Plus provided services to MC+ Managed Care Members in the ten counties of the Eastern Region. Missouri Care and HealthCare USA continued to operate in eighteen counties in the Central Region. Family Health Partners, FirstGuard and Blue Advantage Plus continued to operate in nine counties in the Western Region. In February 2003, HealthCare USA began operating in the Western Region, making it the only MCO operating in all three MC+ Managed Care Regions of the State. As of December 31, 2003, HealthCare USA's Membership was 43.3% statewide. The remaining MCOs enrolled 7% to 11% of MC+ Managed Care Members (Mercy Health Plan, 9.5%; Community Care Plus, 10.6%; Missouri Care, 7.6%; Family Health Partners, 11.3%; FirstGuard, 9.8%; Blue Advantage Plus, 8.1%).

MC+ Managed Care Program Changes in 2003

Contracts with MCOs have been updated to reflect the changes in the Medicaid Managed Care Rules published by the CMS on January 24, 2003. Many of the changes were already incorporated into the Eastern and Central Region contracts effective January 1, 2003. This is a four-year contract with a two-year renewable option and a 180-day opt-out provision after the second year. Changes to the Western Region contracts were issued in July 2003 with implementation in August 2003. The State has aligned the contract dates for all regions and lengthened the contract periods to simplify the contracting and renewal processes.

Vendor Changes

- In July 2003 a smooth transition was made to Policy Studies, Inc. (PSI), the new enrollment broker for the State.

Information Systems

- A new decision support system (Advantage Suite) was in the process of being developed as of late 2003. It will be able to generate administrative report summaries, monthly updates, and ad hoc reports for the previous 30 months.
- The DMS developed a corrective action plan approved by CMS to improve their ability to use State encounter claim data to develop capitation rates. Evaluation and improvement of the completeness of the encounter database is underway.

Quality Assessment and Improvement Initiatives Undertaken by the Division of Medical Services

DMS assures that high quality health care services are delivered to MC+ Managed Care Members through MCOs that meet federal, state, and contractual requirements and that work collaboratively with DMS to implement the *Quality Improvement Strategy* (finalized on September 24, 2003). On June 16-17, 2003, CMS conducted a review of the MC+ Managed Care Program and approved the proposed quality review process for 2004. The Quality Assessment and Improvement (QA & I) Advisory Group is responsible for implementing the Quality Improvement Strategy. This group meets quarterly for planning, state agency coordination, and discussion of emerging quality issues. The QA & I Advisory Group consists of three designated subgroups, (Maternal and Child Health, Mental Health, and Medical Directors) and several ad hoc work groups.

The following accomplishments were achieved by DMS during 2003:

- Contract language related to enrollee rights in MC+ Managed Care Member handbooks, grievance and appeal processes, and fraud and abuse polices were reviewed for compliance with the mandatory language required by CMS. All written correspondence and materials for MC+ Managed Care Members were assessed for compliance to a sixth grade reading level. All MCOs met the standards.
- The Contract Compliance Unit developed a new tool to ensure that basic contract requirements were being met by the MCOs. The contract compliance tool will be implemented in all Regions in 2004.
- Network access and adequacy was monitored by the Contract Compliance Unit and the Missouri Department of Insurance (MDI). Some distance standards for rural area access to hospitals and specialists were exempt, due to provider shortages. Corrective action was initiated related to the number of, and distance to, physical therapy providers for some MCOs.
- Compliance with a requirement to assure that dental subcontractors received the mandatory rate was evaluated, with all MCOs found to be in compliance with this requirement.
- The Quality Assessment Unit and Contract Compliance Units jointly reviewed MCO documents with an emphasis on fraud and abuse policies, lead poisoning case management, grievance and appeal policies and procedures, subcontractor oversight, HEDIS indicators, and annual MCO evaluations.
- A standard format was developed with input from all of the MCOs to use in the development and documentation of Performance Improvement Projects (PIPs). Four of the MCOs implemented the form for the 2003 Performance Improvement Projects.
- MC+ Managed Care Program Policy Statements regarding credentialing, case management, and special health care needs population identification were updated.

- A template for the MCO Annual Report was suggested by Mental Health Network, a behavioral health subcontractor and was adopted by DMS for use by the MCOs for the 2003 MCO Annual Report.

Quality Assessment and Improvement Advisory Group Activities

The QA & I Advisory Group consists of three designated subgroups, (Maternal and Child Health, Mental Health, and Medical Directors) and several ad hoc work groups. The Maternal and Child Health Subgroup brings together representatives from several state agencies and the MCOs. Areas of concern addressed by this group included adolescent health, continuity of health care for children in foster care, and unintentional injury prevention. In addition, the School Health Community Task Force met to discuss issues surrounding coordination with MCOs. The Medical Directors Subgroup conducted the annual review of the EPSDT forms, approved changes in the state forms, and examined strategies to improve EPSDT rates for adolescents. The Medical Directors Subgroup developed recommendations for the use of EPSDT forms for sports physicals, coordination of lead testing and documentation with WIC programs, and Synagis® medication utilization for high risk infants. The Mental Health Subgroup continues to meet quarterly. They continue to use the Universal Consent Form for Treatment and plan to evaluate implementation of this form. The Subgroup updated the mental health indicators and plans to develop practice guidelines.

Interagency Coordination

- State agency representatives from DMS, Division of Family Services (DFS), and the Departments of Elementary and Secondary Education (DESE), Health and Senior Services (DHSS), and Mental Health (DMH) met to identify instances of system duplication for case management services. Areas of overlap were identified and strategies to improve the coordination of care were developed.
- DMS agency representatives met with DFS, DMH, and the Division of Youth Services (DYS) to improve communication and coordination related to children with special health care needs.

SECTION 2. MC+ MANAGED CARE PROGRAM INDICATORS

MC+ Managed Care Member Characteristics

Demographics

The distribution of demographic characteristics of MC+ Managed Care Members in Calendar Year (CY) 2003 was very similar across MC+ Managed Care Regions. Females accounted for almost sixty percent (57.0%) of MC+ Managed Care Members, with males accounting for less than half (43.0%). More than twenty-five percent (25.4%) of the population was 21 years or older, while the balance of the population was 20 years old or younger (see Table 1).

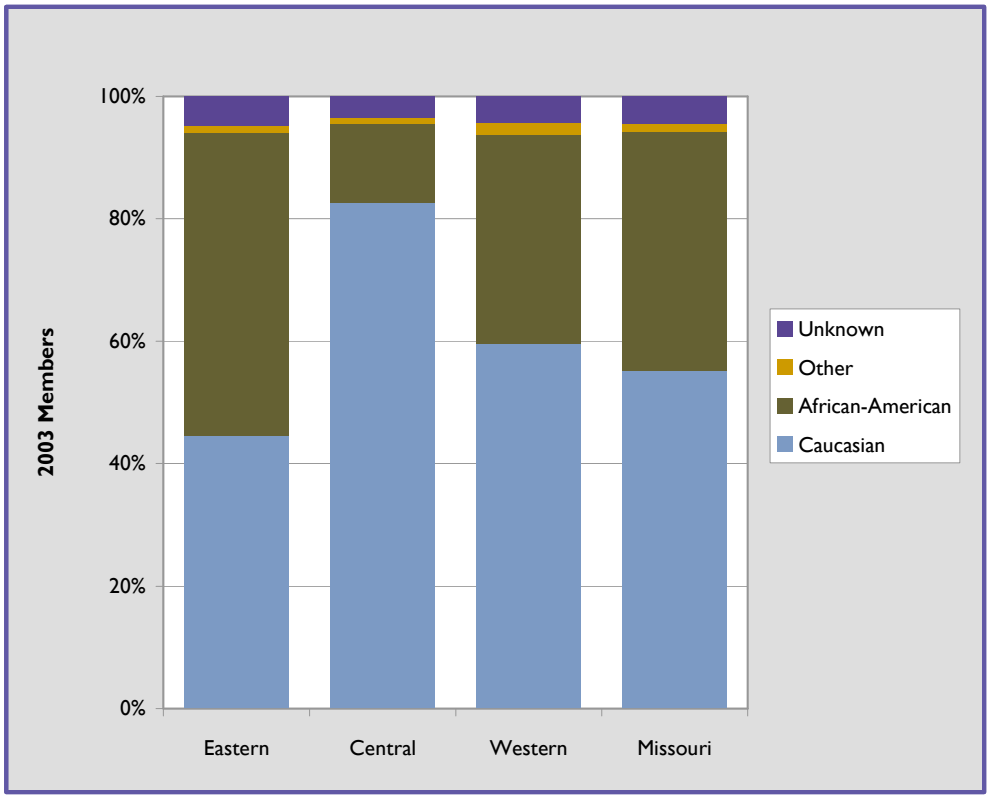
Table 1. Age Distribution of MC+ Managed Care Members

Age Categories	MC+ Total	Percent
Less than 1 year	25,211	4.3%
1-2 years	56,418	9.7%
3-5 years	75,571	13.0%
6-9 years	86,292	14.8%
10-14 years	102,662	17.7%
15-18 years	65,990	11.4%
19-20 years	21,217	3.7%
≥ 21 years	147,862	25.4%
Total	**581,223**	**100%**

Source: Missouri Department of Social Services, Division of Medical Services, MMIS, Enrollment and Beneficiary Data, 2003

Figure 1 shows regional differences in the racial composition of MC+ Managed Care Members during CY2003. The greatest proportion of African American MC+ Managed Care Members was in the Eastern Region, and the greatest proportion of Caucasian MC+ Managed Care Members was in the Central Region.

Figure 1. Racial Distribution of MC+ Managed Care Members by Region, 2003



Source: Missouri Department of Social Services, Division of Medical Services, MMIS, Enrollment and Beneficiary Data, 2003

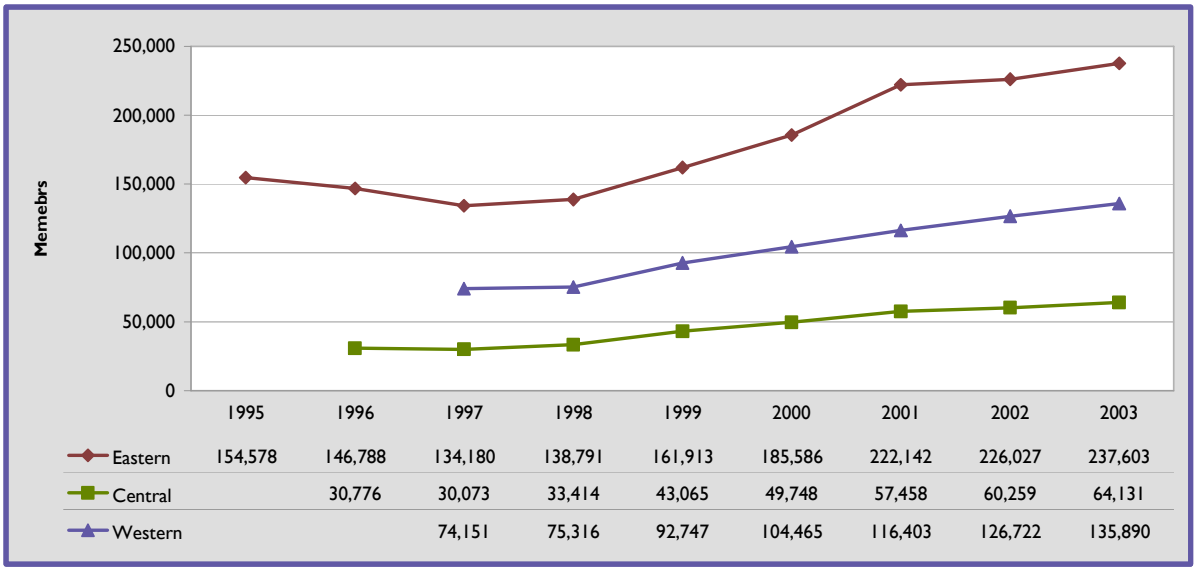
The MC+ Managed Care Program Health Benefits Manager (Policy Studies, Inc.; PSI) for the MC+ Managed Care Program tracks the spoken language of MC+ Managed Care Members who call the enrollment help line. Over a four-month period from July through October 2003, 92% of the calls were from English-speaking MC+ Managed Care Members; 8.1% spoke Spanish, and 0.1% spoke Bosnian. A smaller proportion of MC+ Managed Care Members spoke one of fifteen other languages.

Enrollment

The total number of active MC+ Managed Care Members during the last week of December 2003 was 437,624. Increases in enrollment were evident each year since the MC+ Managed Care Program began and within each MC+ Managed Care Region, with the trend in the rate of growth beginning to level out

over the past four years (see Figure 2). The rate of increase from the last week in December 2002 to the last week in December 2003 was 5.96% (Missouri Department of Social Services, Division of Medical Services, July 2002, July 2003).

Figure 2. MC+ Managed Care Program Enrollment by Region, 1995-2003



Source: Missouri Department of Social Services, Division of Medical Services, 2003; State Session MPRI screen.

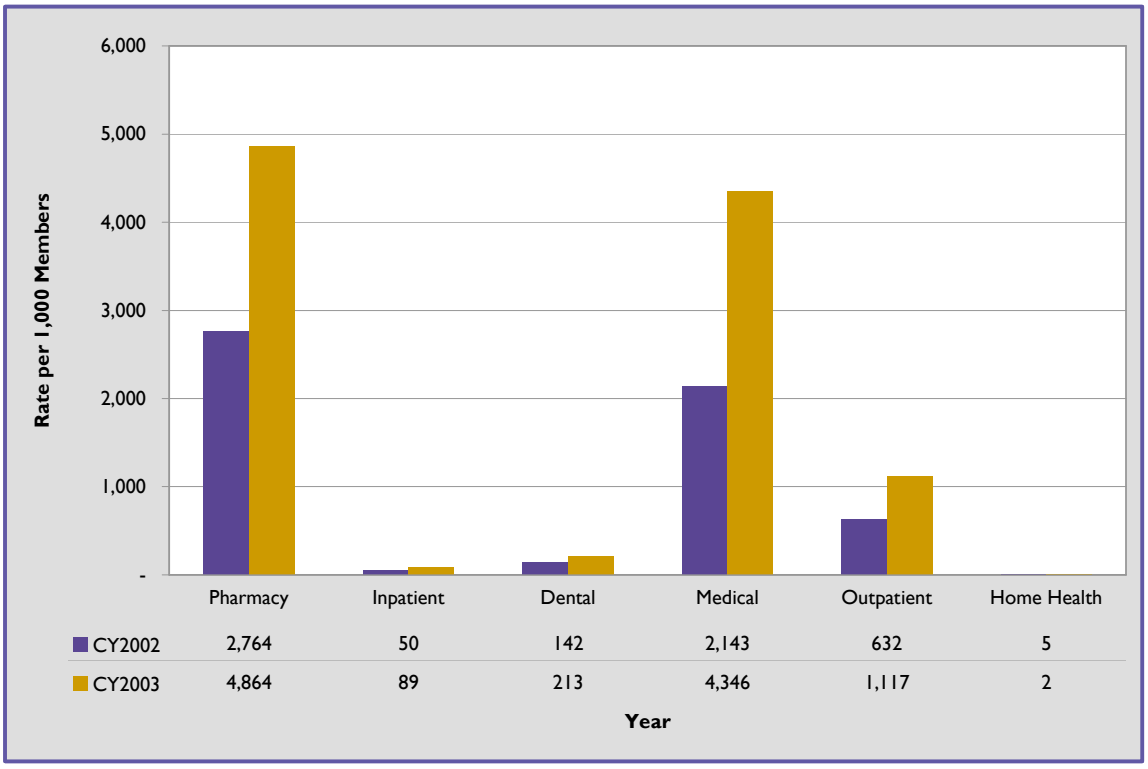
At the time of enrollment, new MC+ Managed Care Members are encouraged to identify an MCO and a PCP; otherwise, they are assigned to an MCO (auto-assignment). If they do not choose a PCP at the time of enrollment in the MCO, the MCO will assign a PCP to the MC+ Managed Care Member. The MC+ Managed Care Program Health Benefits Manager, PSI, takes phone calls to assist new MC+ Managed Care Members with completing the Health Risk Assessment Form, answering questions, and assisting with MCO selection. The rate of random assignment of MC+ Managed Care Program Members to an MCO was 8.0% during State Fiscal Year 2004 (Missouri Department of Social Services, Division of Medical Services; Assignment Types, All MC+ Regions, Statewide; July 9, 2004).

Service Utilization and Access

Encounter Claims

Encounter claims document the patterns of use of inpatient, outpatient hospital, pharmacy, dental, medical, and home health services of MC+ Managed Care Members. Figure 3 shows the rate of claims per 1,000 MC+ Managed Care Members for CY2002 and CY2003. The rate of claims per 1,000 MC+ Managed Care Members increased from 50% (dental) to 103% (medical). Pharmacy claims increased by 76%, outpatient hospital by 77%, and inpatient by 81%. Home health claims decreased by 54% between CY2002 and CY2003. The increase in dental encounters in 2003 is encouraging and will be discussed in more detail under Dental Service Utilization, a study conducted on children enrolled in the MC+ Managed Care Program.

Figure 3. Claims per 1,000 MC+ Managed Care Members



Source: MISSOURI MEDICAID MANAGEMENT INFORMATION SYSTEM COLD Reports, Run Dates, 03/22/2003, 6/21/2003, 09/20/2003,12/20/2003; Missouri Department of Social Services, Division of Medical Services, State Session MPRI screen, Rev. June 25, 2004

Note: Outpatient refers to the outpatient hospital claim type

The rate of claims for each MCO and type of claim are shown in Table 2. The rate of claims per 1,000 MC+ Managed Care Members was consistently highest in the Central Region and lowest in the Western Region. This likely reflects regional differences in practice patterns and availability of providers and facilities.

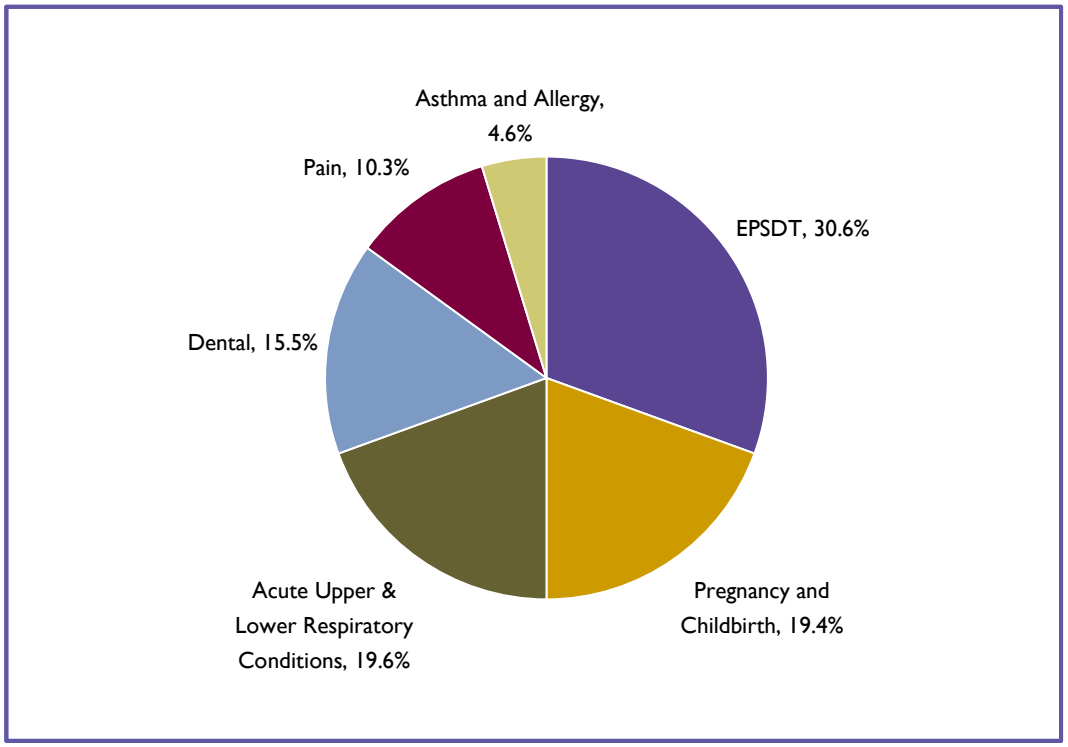
Table 2. Claims per 1,000 MC+ Managed Care Members by MCO

MCO	Pharmacy	Inpatient	Dental	Medical	Outpatient Hospital	Home Health	Total
Community Care Plus	2,919	89	263	4,682	1,033	-	8,988
HealthCare USA	6,543	116	284	5,509	1,357	0	13,808
Mercy Health Plan	5,639	126	105	3,726	926	-	10,521
Eastern Region	**5,676**	**112**	**249**	**5,037**	**1,219**	**0**	**12,293**
HealthCare USA	7,967	107	321	7,470	1,544	0	17,409
Missouri Care	7,477	141	289	7,723	2,375	-	18,005
Central Region	**7,713**	**125**	**305**	**7,601**	**1,975**	**0**	**17,718**
Family Health Partners	2,065	34	138	1,604	625	14	4,480
FirstGuard	2,732	32	108	1,664	536	1	5,073
HealthCare USA	667	30	57	939	357	-	2,050
Blue Advantage Plus	1,734	34	83	1,692	451	9	4,003
Western Region	**2,099**	**33**	**109**	**1,603**	**535**	**8**	**4,388**
Missouri	**4,864**	**89**	**213**	**4,346**	**1,117**	**2**	**10,633**

Source: MISSOURI MEDICAID MANAGEMENT INFORMATION SYSTEM COLD Reports, Run Dates, 03/22/2003, 6/21/2003, 09/20/2003,12/20/2003

The majority of outpatient encounters (including all outpatient claim types; medical, dental, home health, and hospital outpatient) were for preventive care (30.6% for EPSDT and 19.4% for pregnancy and childbirth; see Figure 4). Another frequent diagnostic group consisted of acute upper and lower respiratory conditions (19.6%), which are likely related to the asthma and allergy conditions (4.6%). The "pain" category represents a collection of symptom codes that includes abdominal pain in children, headache, and upper and lower back pain in adults. Pain as the primary diagnosis may indicate that there is no readily identifiable cause that can be determined during the provider's office encounter.

Figure 4. Most Frequent Reason for Visits

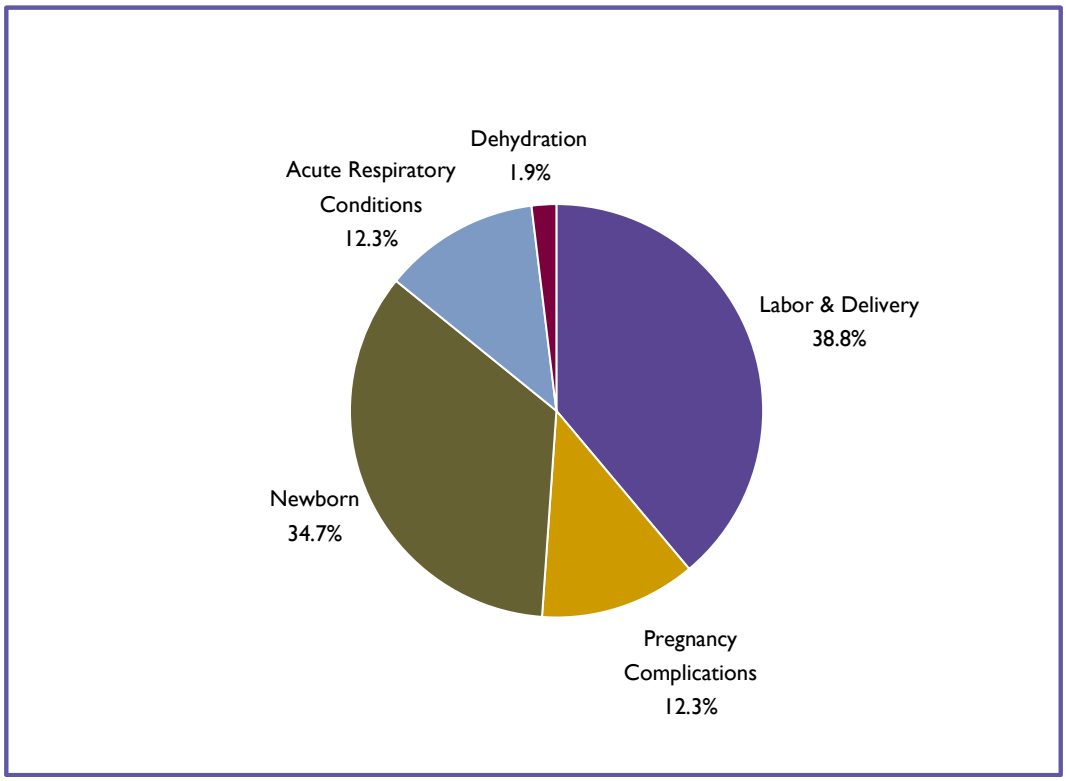


Source: Missouri Department of Social Services, Division of Medical Services, Encounter Database, 2003

INPATIENT ENCOUNTERS

The top thirty International Classification of Diseases, Ninth Revision (ICD-9) codes in the first diagnosis field on the inpatient encounter claim file layout were grouped into five categories that represented 79% of all encounters (see Figure 5). The category "pregnancy complications" was comprised of ICD-9 codes such as preterm labor, pregnancy-induced hypertension, and gestational diabetes. Figure 5 shows that the primary reason for an inpatient encounter was related to pregnancy and childbirth, followed by acute respiratory conditions and dehydration. The ICD-9 codes related to respiratory illness and dehydration were for admissions primarily for infants and toddlers due to viral infections.

Figure 5. Five Most Common Reasons for Hospitalization, 2003



Source: Missouri Department of Social Services, Division of Medical Services, Encounter Database, 2003

PHARMACY ENCOUNTERS

Pharmacy "lock-in" policies developed by the MCOs and approved by the State were implemented in 2002 and 2003. These policies allow the MCO to monitor potentially inappropriate prescription use, especially with pain management medication (e.g., Oxycontin). However, MC+ Managed Care Members continued to have access to medication, as evidenced by the increase in pharmacy encounters (76%) between 2002 and 2003. The MCOs contact MC+ Managed Care Members for case management services if prescription rates per member per month appear to be excessive for their condition. Each MCO sets limits based on their population and prior year trends.

Dental Service Utilization

Under their contracts to provide health services to MC+ Managed Care Members, MCOs are required to provide dental services. Dental service use for children increased by 50% from 2002 to 2003, representing the smallest rate of increase in the claims per 1,000 MC+ Managed Care Members of all claim types. Due to concerns regarding access to dental providers and services, an examination of access to dental services was conducted. The DMS Policy Statement for Dental Services outlines the MCOs' responsibilities for these services. The policy states that "the MC+ health plans must conduct EPSDT screens on enrollees under the age of 21 to identify health and developmental problems. It is recommended that preventive dental services and oral treatment for children begin at age 6 to 12 months and be repeated every six months or as medically indicated".[5] Although an oral screening may be part of a physical examination, the DHHS and the CMS state that an oral screening does not substitute for an examination through direct referral to a dentist.[6]

5 EPSDT screens are not covered for uninsured parents with ME Code 76 even if they are under the age of 21.
6 Source: MC+ Policy Statements (Dental). Retrieved 12/26/03.

In the MC+ Managed Care Program, the MCOs delegate dental services to Dental Benefit Management Organizations (BMO's; see Table 3), however, they are responsible for ensuring that state requirements and health care needs for MC+ Managed Care Members are met.

Table 3. MCO Dental Benefit Management Organizations

MCO	Dental Plan
Eastern Region	
Community Care Plus	Bridgeport Dental
HealthCare USA	Doral Dental
Mercy Health Plan	Bridgeport Dental
Central Region	
HealthCare USA	Bridgeport Dental
Missouri Care	US Dental Management
Western Region	
Family Health Partners	Bridgeport Dental
FirstGuard Health Plan	Doral Dental
HealthCare USA	Bridgeport Dental
Blue Advantage Plus	Doral Dental

Several sources of data were reviewed to examine the access to and use of dental services among MC+ Managed Care Members. First, a state mandated reporting indicator (Health Employer Data Information Set; HEDIS) for annual dental visits was examined (HEDIS 1999 to HEDIS 2003; for data years 1998 to 2002). Second, the adequacy of MCO dental provider networks was examined. Third, State encounter claims data for CY2001 and CY2002 for MC+ Managed Care Program Member and Fee-for-Service recipient groups were compared. These represented paid and accepted claims in the State encounter claims system, as captured by the former decision support system, DataScan.

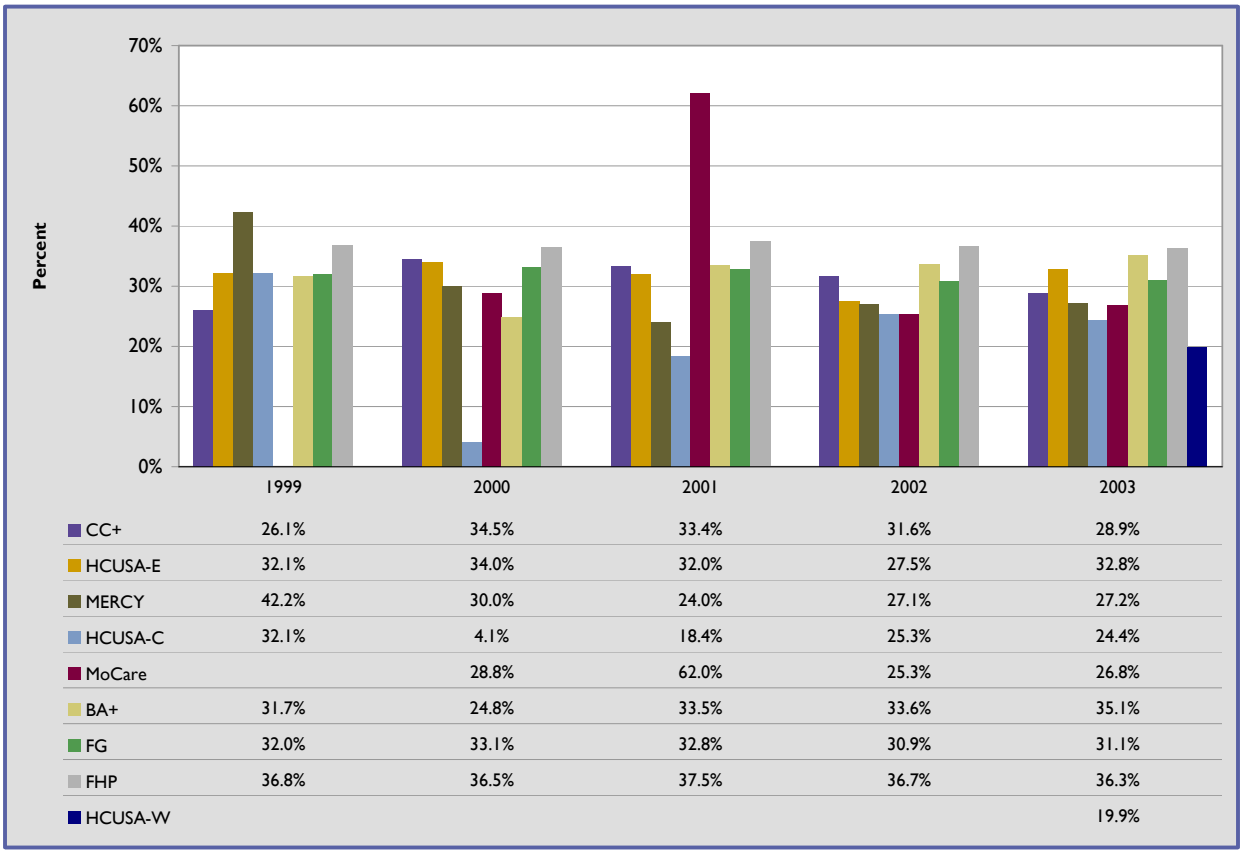
ANNUAL DENTAL VISIT RATES

The MC+ Managed Care Program MCOs must report annual dental examination rates to the Department of Health and Senior Services (DHSS) on an annual basis. Rates are based on HEDIS calculations of the proportion of enrolled MC+ Managed Care Members who were four to 21 years of age, continuously enrolled during the measurement year, and who had at least one dental visit during the measurement year.

In CY2002, the MCO HEDIS rates for annual dental visits ranged from 19.9% to 36.3%, with an average of 29.2%. DHSS categorized these rates as "Low/Needs Improvement, Average, or High/Good" based on how each MCO compared to the average of the nine MCOs. Using these ratings, four MCOs (Blue

Advantage Plus, Family Health Partners, FirstGuard, and HealthCare USA - Eastern) received a "high" rating; one (Community Care Plus) received an "average" rating, and four (HealthCare USA – Central, HealthCare USA-Western, Mercy Health Plan, and Missouri Care) received a "low" rating. Figure 6 illustrates the annual dental examination rates for each of the MCOs from CY1999 to CY2003.

Figure 6. HEDIS Quality Indicator Rates: Annual Dental Visits, CY1999-CY2003



	1999	2000	2001	2002	2003
CC+	26.1%	34.5%	33.4%	31.6%	28.9%
HCUSA-E	32.1%	34.0%	32.0%	27.5%	32.8%
MERCY	42.2%	30.0%	24.0%	27.1%	27.2%
HCUSA-C	32.1%	4.1%	18.4%	25.3%	24.4%
MoCare		28.8%	62.0%	25.3%	26.8%
BA+	31.7%	24.8%	33.5%	33.6%	35.1%
FG	32.0%	33.1%	32.8%	30.9%	31.1%
FHP	36.8%	36.5%	37.5%	36.7%	36.3%
HCUSA-W					19.9%

Source: Missouri Department of Health, Center for Health Information Management & Evaluation, 2000, 2001, 2002, & 2003 Show Me Guide: Missouri Managed Care Plan. HEDIS Quality Indicator Rates. Retrieved from http://www.dhss.state.mo.us/ManagedCare/. December 26, 2003.

DENTAL PROVIDER NETWORK

The availability of actively practicing dentists in Missouri, especially those accessible to low-income persons, has been cited as a reason for low dental service rates. The Centers for Disease Control and Prevention (CDC) reported that in 2002, Missouri had 2,690 dentists of which 11% were enrolled in Medicaid.[7] A 2002 Department of Insurance/Division of Medical Services network adequacy analysis, however, does not document this shortage. The analysis shows that all counties served by five of the seven MCOs had a 90-100% adequacy score, meeting or exceeding a 90% guideline. Two MCOs each had one county in their service area that did not meet the adequacy guideline. Blue Advantage Plus had one county with a rate of 21%, while the remaining eight counties demonstrated rates of 96-100%. Mercy Health Plan had one county just below the guideline (89%), while the remaining nine counties in the service area had 90-100% adequacy scores.[8] This finding suggests that the MCOs had adequate numbers of dentists in their networks during 2002. Additional assessment is needed to determine the relationship of adequacy scores and actual access to dental services.

DENTAL ENCOUNTER CLAIMS

DMS encounter claims for CY2001 and CY2002 were summarized for dental utilization patterns by age for MC+ children (MC+ Managed Care Program Members and MC+ Fee-for-Service recipients). A total of 44,958 MC+ Managed Care Members and Fee-for-Service recipients ages 18 years and younger had claims for dental office visits during CY2001, while 35,335 had one or more claims for CY2002.

A substantial difference was seen in the proportion of MC+ Managed Care Members with an office visit compared to Fee-for-Service recipients. In 2001, the Fee-for-Service recipient group had a rate of 1.0%, while the MC+ Managed Care Member group had a rate of 16.7%. In 2002, there was a similar difference in which the Fee-for-Service recipient group had a rate of 0.9%, while the MC+ Managed Care Member group had a much higher rate (11.8%).

Both groups showed significant decreases in office visit utilization. The MC+ Managed Care Program group showed a 29.3% decrease (CY2002 rate-CY2001 rate/CY2001 rate), which was statistically significant (95% CI: 1.43, 1.40, $\underline{p} < .05$). The Fee-for-Service group demonstrated a 9.6% decrease, which was also significant (95% CI: 1.17, 1.06, $\underline{p} < .05$). Additional years of data are needed to determine if there are any developing trends.

7 Oral Health Resources, Synopses by State. Centers for Disease Control and Prevention (CDC). www.cdc.gov. Retrieved 12/26/2003.

8 Adequacy scores are not available for 2003. According to DMS (Randy Rust, Department of Social Services, and Division of Medical Services. Written communication, January 19, 2004), the network adequacy report will no longer include dentistry as it is not required by 20 CSR 400-7.095 and there are no mandated distance standards for MC+ MCOs.

Three additional encounter claim summaries were examined and compared for differences in MC+ Fee-for-Service recipient and the MC+ Managed Care Program Member groups. The three measures were gum disease, dentures and extractions.

Data for 2001 showed that 6,415 MC+ children had claims for gum disease. Of these, 4,965 (77.4%) children were MC+ Fee-for-Service recipients and 1,450 (22.6%) were MC+ Managed Care Members. The MC+ Managed Care Member group showed a lower gum disease rate of 5.4 per 1,000 MC+ Managed Care Members than the MC+ Fee-for-Service recipient group, with a rate of 14.9 per 1,000 recipients.

A total of 80 MC+ children had claims for dentures in 2001. Of these, 53 (66.3%) were MC+ Managed Care Members and 27 (33.7%) were MC+ Fee-for-Service recipients. The MC+ Managed Care Member group had a lower rate of dentures, with 1.0 per 10,000 MC+ Managed Care Members having a denture claim and the MC+ Fee-for-Service recipient group having a rate of 1.6 per 10,000 recipients.

A total of 13,962 MC+ children had encounter claims for extractions during 2001. Of these, 57.8% were in Fee-for-Service and 5,886 (42.2%) were in the Managed Care Program. MC+ Managed Care Members had a lower rate (21.9 per 1,000) of extraction encounter claims than Fee-for-Service recipients (24.0 per 1,000). For 2002, a total of 16,695 children had claims for extractions. Of these, 8,756 (52.4%) were Fee-for-Service recipients and 7,939 (47.6%) were MC+ Managed Care Members. MC+ Managed Care Members had a lower rate (26.6 per 1,000) of extraction encounter claims than Fee-for-Service recipients (27.3 per 1,000).

Mental Health Indicators

The mental health subgroup of the QA & I Advisory Group has continued to track and trend mental health indicators through CY2002 for each of the MCOs. Aggregate data submitted by MCOs and their subcontractors (Behavioral Health Organizations; BHOs) for selected indicators were reviewed to examine access and use of mental health and substance abuse services among the MC+ Managed Care Members. MCO to MCO comparison data were available and are presented along with available benchmark data.

Table 4 shows the total mental health penetration rates. For 2002, the rate of penetration ranged from 4.6% to 9.9% across all ages. HealthCare USA in the Western Region had a rate of 2.6%, but this was a

start-up year for HealthCare USA in the Western Region. A three-year study by Dougherty Management Associates found a national average of 9% penetration rate of children enrolled in Medicaid across eleven states that participated in the study. Mental health penetration rates increased or remained stable from 2001 to 2002 in the Eastern Region MCOs; one Central Region MCO showed an increase in penetration rate while the other showed a decrease; and the three MCOs operating in the Western Region for 2001 to 2002 all showed increases in the penetration rate for mental health services.

Table 4. Total Mental Health Penetration Rates, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	3.7%	2.8%	3.8%	4.6%
HealthCare USA	Mental Health Network	3.0%	4.8%	5.7%	5.7%
Mercy Health Plan	Unity Health Services	9.1%	9.1%	4.6%	6.0%
Central Region					
HealthCare USA	Mental Health Network	7.0%	7.7%	9.6%	9.0%
Missouri Care	Magellan	8.3%	8.8%	9.0%	9.9%
Western Region					
Family Health Partners	CommCare	4.9%	4.7%	5.6%	7.5%
FirstGuard	Magellan	3.7%	4.4%	4.7%	6.0%
HealthCare USA	Mental Health Network				2.6%
Blue Advantage Plus	New Directions Behavioral Health	4.5%	4.9%	6.1%	7.3%

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 5 shows the number of outpatient visits per 1,000 MC+ Managed Care Members. The range in outpatient visits per 1,000 MC+ Managed Care Members was 214.1 to 888.3. In the Eastern Region, the rate of outpatient visits per 1,000 MC+ Managed Care Members increased between 2001 and 2002 for all three MCOs. In the Central Region, the rate decreased from 2001 to 2002 for HealthCare USA, while it increased for Missouri Care. In the Western Region, all MCOs showed an increase in the rate of mental health outpatient visits per 1,000 MC+ Managed Care Members between 2001 and 2002.

Table 5. Mental Health Outpatient Visits per 1,000 MC+ Managed Care Members, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	117.0	112.4	163.2	214.1
HealthCare USA	Mental Health Network	186.0	211.1	286.1	299.8
Mercy Health Plan	Unity Health Services	177.0	231.0	205.0	564.0
Central Region					
HealthCare USA	Mental Health Network	369.2	430.8	525.6	495.7
Missouri Care	Magellan	423.0	355.0	418.2	888.3
Western Region					
Family Health Partners	CommCare	243.2	251.2	301.5	413.3
FirstGuard	Magellan	213.8	316.0	186.8	359.7
HealthCare USA	Mental Health Network				86.3
Blue Advantage Plus	New Directions Behavioral Health	194.2	254.3	371.0	421.1

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 6 shows the mental health inpatient admission rate per 1,000 MC+ Managed Care Members for each MCO. In 2002, the rate per 1,000 MC+ Managed Care Members of mental health inpatient admissions ranged from 6.8 to 9.3 admissions per 1,000 MC+ Managed Care Members. In the Eastern Region, two of the three MCOs had an increased rate per 1,000 MC+ Managed Care Members. In the Central Region, one MCOs' rate increased while the other decreased; and in the Western Region, two of three MCOs in operation in 2002 showed an increase in inpatient admissions per 1,000 MC+ Managed Care Members.

Table 6. Mental Health Inpatient Admissions per 1,000 MC+ Managed Care Members, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	0	4.6	7.3	8.9
HealthCare USA	Mental Health Network	0	4.4	6.6	8.4
Mercy Health Plan	Unity Health Services	0	12.0	12.0	9.3
Central Region					
HealthCare USA	Mental Health Network	0	6.6	8.7	9.0
Missouri Care	Magellan	0	6.6	9.0	6.8
Western Region					
Family Health Partners	CommCare	6.4	4.5	0.6	7.5
FirstGuard	Magellan	0	4.3	5.1	7.9
HealthCare USA	Mental Health Network				
Blue Advantage Plus	New Directions Behavioral Health	10.3	5.7	9.4	9.1

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 7 shows the rate of mental health inpatient days per 1,000 from 1999 to 2002 for each of the MCOs. In 2002, the rate of days per 1,000 MC+ Managed Care Members ranged from 30.2 to 49.5 days per 1,000 MC+ Managed Care Members. The rate of inpatient days per 1,000 MC+ Managed Care Members was higher than the national average. In 2002, the rate for Medicaid children under eighteen years of age was an average of 24.0 mental health inpatient days per 1,000 MC+ Managed Care Members, with a median of 20.0 days per 1,000 MC+ Managed Care Members (Dougherty Management and Associates, 2003).

Table 7. Mental Health Inpatient Days per 1,000 MC+ Managed Care Members, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern MC+ Managed Care Region					
Community Care Plus	Magellan	17.1	25.4	30.4	38.2
HealthCare USA	Mental Health Network	19.5	32.1	40.6	31.2
Mercy Health Plan	Unity Health Services	58.0	55.0	48.6	42.0
Central MC+ Managed Care Region					
HealthCare USA	Mental Health Network	27.0	49.9	52.6	39.5
Missouri Care	Magellan	23.2	32.1	19.9	49.5
Western MC+ Managed Care Region					
Family Health Partners	CommCare	17.1	30.3	34.2	36.6
FirstGuard	Magellan	18.1	21.0	36.2	30.2
HealthCare USA	Mental Health Network				2.6
Blue Advantage Plus	New Directions Behavioral Health	25.7	47.2	43.8	44.6

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 8 shows the rate of mental health ambulatory follow-up visits seven days following hospitalization from 1999 to 2002 for the MCOs. The rate of follow-up visits at seven days ranged from 15.5% to 40.9%. For states participating in a national study, the mean rate of ambulatory follow-up visits after seven days for Medicaid children under eighteen years of age was 49%, while the median was 48%. In the Eastern Region, the rate of ambulatory follow-up visits at seven days increased for two MCOs and decreased for one. Both MCOs in the Central Region showed decreases in follow-up visits at seven days following hospitalization from 2001 to 2002; and two of the three Western Region plans in operation throughout the year showed increases in follow-up rates at seven days following discharge from psychiatric hospitalization.

Table 8. Mental Health Ambulatory Follow-up Visits (7 Days), MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	16.6%	12.0%	25.8%	15.5%
HealthCare USA	Mental Health Network	21.0%	21.9%	25.1%	30.0%
Mercy Health Plan	Unity Health Services	21.0%	27.0%	21.0%	38.0%
Central Region					
HealthCare USA	Mental Health Network	18.0%	38.1%	26.7%	22.4%
Missouri Care	Magellan	2.7%	22.7%	38.1%	26.4%
Western Region					
Family Health Partners	CommCare	30.0%	27.9%	34.0%	40.9%
FirstGuard	Magellan	24.1%	29.0%	26.0%	28.6%
HealthCare USA	Mental Health Network				36.6%
Blue Advantage Plus	New Directions Behavioral Health	24.2%	31.4%	45.5%	37.4%

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 9 shows the rate of mental health ambulatory follow-up visits at thirty days following psychiatric hospitalization for MCOs. The rate in 2002 ranged from 41.8% to 64.9% across MCOs. This is lower than the national average for Medicaid recipients (mean = 68%, median = 70%; Dougherty Management and Associates, 2003). In the Eastern Region, two of the three MCOs showed increases in the rate of follow-up visits at thirty days; in the Central Region, one MCO showed a decrease and the other had a stable rate between 2001 to 2002; and in the Western Region, all three MCOs improved their rates of ambulatory follow-up visits at thirty days post psychiatric hospitalization.

Table 9. Mental Health Ambulatory Follow-up Visits (30 Days), MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	30.0%	25.4%	47.3%	41.8%
HealthCare USA	Mental Health Network	40.3%	NA	50.0%	52.2%
Mercy Health Plan	Unity Health Services	60.0%	57.0%	51.0%	54.0%
Central Region					
HealthCare USA	Mental Health Network	41.0%	67.8%	54.3%	54.1%
Missouri Care	Magellan	4.6%	50.4%	60.6%	58.8%
Western Region					
Family Health Partners	CommCare	51.3%	53.3%	57.9%	64.9%
FirstGuard	Magellan	51.7%	52.0%	53.9%	54.6%
HealthCare USA	Mental Health Network				51.2%
Blue Advantage Plus	New Directions Behavioral Health	43.2%	47.1%	61.4%	63.1%

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 10 shows the rate of inpatient substance abuse admissions per 1,000 MC+ Managed Care Members for MCOs. The rate of inpatient substance abuse admissions per 1,000 MC+ Managed Care Members ranged from .4 to 2.0 admissions per 1,000 MC+ Managed Care Members in 2002. One MCO in each of the regions showed an increase in the rate of admissions from 2001 to 2002, while the remainder showed a stable rate or decline from 2001 to 2002.

Table 10. Inpatient Substance Abuse Admissions per 1,000 MC+ Managed Care Members, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	0.7	0.3	0.8	1.2
HealthCare USA	Mental Health Network	1.0	1.1	1.9	1.1
Mercy Health Plan	Unity Health Services	7.0	7.0	2.1	2.0
Central Region					
HealthCare USA	Mental Health Network	0.6	0.5	1.7	0.9
Missouri Care	Magellan	0.4	0.7	0.4	1.1
Western Region					
Family Health Partners	CommCare	0	0.1	0.3	0.5
FirstGuard	Magellan	0.2	0.5	0.7	0.4
HealthCare USA	Mental Health Network				0.8
Blue Advantage Plus	New Directions Behavioral Health	0.1	1.7	0.7	1.0

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Table 11 shows the inpatient substance abuse days per 1,000 MC+ Managed Care Members for the MCOs from 1999 to 2002. The rate in days per 1,000 MC+ Managed Care Members ranged from 1.6 to 6.0 per 1,000 MC+ Managed Care Members. There was an increase in the rate of days per 1,000 MC+ Managed Care Members in one MCO in the Eastern MC+ Managed Care Region; in both MCOs in the Central MC+ Managed Care Region; and in one in MCO in the Western MC+ Managed Care Region.

Table 11. Inpatient Substance Abuse Days, per 1,000 MC+ Managed Care Members, MC+ Managed Care Program

MCO	BHO	1999	2000	2001	2002
Eastern Region					
Community Care Plus	Magellan	1.3	1.0	2.1	3.2
HealthCare USA	Mental Health Network	3.0	3.6	7.6	3.4
Mercy Health Plan	Unity Health Services	5.0	10.0	6.2	6.0
Central Region					
HealthCare USA	Mental Health Network	2.0	1.9	0.9	2.7
Missouri Care	Magellan	1.7	1.9	1.2	3.6
Western Region					
Family Health Partners	CommCare	0.1	0.4	0.9	1.7
FirstGuard	Magellan	0.9	1.5	2.8	1.6
HealthCare USA	Mental Health Network				3.0
Blue Advantage Plus	New Directions Behavioral Health	0.3	1.7	2.8	2.6

Source: Missouri Department of Mental Health and Missouri Department of Social Services, Mental Health Subgroup of the Quality Assessment and Improvement Advisory Group for the MC+ Managed Care Program, 2004

Note: BHO = Behavioral Health Organization

Case Management

MCOs receive guidance from the State of Missouri MC+ Managed Care Program Policy Statements, the federal Managed Care regulations from CMS, and their contract with the State to assist them in developing care management services for MC+ Managed Care Members with special healthcare needs (SHCN). MC+ Managed Care Members with special healthcare needs are identified by the State and the MCOs. They may include MC+ Managed Care Members with a number of high risk conditions defined by MCOs (e.g., lead poisoning, prenatal risk factors, behavioral health needs, or other chronic medical conditions). The emphasis of this guidance is to improve health status through coordination of individual MC+ Managed Care Member healthcare needs. All of the MCOs monitor high risk MC+ Managed Care Members by employing specialized nurses to have regular contact with MC+ Managed Care Members to perform case management. The State of Missouri defines case management as a part of the care management provided to MC+ Managed Care Members (see 2.14.11c)[9]:

1) Case management is a clinical system that focuses on the accountability of an identified individual or group for coordinating a patient's care (or group of patients) across an episode or continuum of care; negotiating, procuring, and coordinating services and resources needed by patients/families with complex issues; insuring and facilitating the achievement of quality, clinical, and cost outcomes; intervening at key points for individual patients; addressing and resolving patterns of issues that have a negative quality cost impact; and creating opportunities and systems to enhance outcomes. (Definition used with permission of The Center for Case Management, 6 Pleasant Street, South Natick, MA 01760.) Case management is understood as including, but not limited to the development of individualized treatment plans and ongoing communication and coordination with other systems of care. The treatment plans must be:
   - Developed by the member's primary care provider with member participation, and in consultation with any specialists caring for the member;
   - Approved by the entity in a timely manner, if this approval is required; and
   - In accord with any applicable State quality assurance and utilization review standards.

9 RFP NO. B3Z03182 Medicaid Managed Care – Western Region AMENDMENT NO. 002; ISSUE DATE: 08/14/03, 68-69.

The Federal Medicaid Managed Care Rules require the identification, assessment, treatment planning, and access for Medicaid Managed Care Members who have special health care needs (SHCN)[10]:

> **(1) Identification**. The State must implement mechanisms to identify persons with special health care needs to MCOs, PIHPs as those persons are defined by the State. These identification mechanisms
> (i) May use State staff, the State's enrollment broker, or the State's MCOs, PIHPs
>
> **(2) Assessment.** Each MCO, PIHP,… must implement mechanisms to assess each Medicaid enrollee identified by the State (through the mechanisms specified in paragraph (c) (1) of this section) and identified to the MCO, PIHP,… by the State as having special health care needs in order to identify any ongoing special conditions of the enrollee that require a course of treatment or regular care monitoring. The assessment mechanisms must use appropriate health care professionals.
>
> **(3) Treatment plans.** If the State requires MCOs, PIHPs to produce a treatment plan for enrollees with special health care needs who are determined through assessment to need a course of treatment or regular care monitoring, the treatment plan must be:
>
> (i) Developed by the enrollee's primary care provider with enrollee participation, and in consultation with any specialists caring for the enrollee;
> (ii) Approved by the MCO, PIHP,… in a timely manner, if this approval is required by the MCO, PIHP and
> (iii) In accord with any applicable State quality assurance and utilization review standards.
>
> **(4) Direct access to specialists.** For enrollees with special health care needs determined through an assessment by appropriate health care professionals (consistent with §438.208(c) (2)) to need a course of treatment or regular care monitoring, each MCO, PIHP,… must have a mechanism in place to allow enrollees to directly access a specialist (for example, through a standing referral or an approved number of visits) as appropriate for the enrollee's condition and identified needs.

The MCOs reported the total number of MC+ Managed Care Members who received case management at any time during 2003. Over 13,000 MC+ Managed Care Members participated in nurse coordinated care management services in 2003 for specific conditions or for specific populations (see Table 12).

Table 12. Case Management Types by Plan

MCO	Lead Poisoning	Prenatal	SHCN	Total
Community Care Plus	322	234	139	695
HealthCare USA	772	355	5,721	6,948
Mercy Health Plan	167	161	24	778
Missouri Care	115	483	88	662
Family Health Partners	100	206	219	1,188
FirstGuard	98	1,928	340	2,366
Blue Advantage Plus	55	162	27	711
Total	**1,629**	**3,529**	**6,558**	**13,348**

Source: MCO pre-onsite protocol submissions, February 2003

10 Federal Register, Final Rule, Medicaid Managed Care Regulations, 42CFR 438, Vol. 1, January 1, 2003.

As part of the EQR, a review of case management records for special needs populations was conducted for MC+ Managed Care Members in need of mental health services and those with lead poisoning. The findings of the review of case management for MC+ Managed Care Members with lead poisoning are presented in Section Four of this report, in the *Childhood Lead Poisoning Focused Study*. The case management record review was conducted to identify strengths and weaknesses of case management for MC+ Managed Care Members with special needs .

Prior to site visits, MCOs were requested to make available five case management records of MC+ Managed Care Members receiving behavioral health services in 2003 for review by a psychologist and RN with mental health treatment experience. Across all plans, a total of 34 case management records (from three to six per MCO) were reviewed during the on-site visits conducted in March, 2004. Case management files were reviewed using a standard checklist format based on the state and federal guidelines for case management. Given the low number of cases reviewed per MCO, the findings were aggregated across MCOs to provide an overview of the extent to which behavioral health case management processes address State and federal requirements.

Mental Health Case Management Review Criteria (N = 34)

1. Documentation of member information.
2. Reason for case management.
3. Identification of provider.
4. Documentation of results of assessment of care needs.
5. Documentation of treatment plan.
6. Objective and measurable treatment goals.
7. Documentation of services.
8. Documentation of case management activities.
9. Documentation of community-based services.
10. Documentation of coordination with other entities.

1. Documentation of MC+ Managed Care Member information such as eligibility benefits and age or date of birth was examined as an element of the case management review. Ninety-four percent (94%) of the 34 records documented MC+ Managed Care Member eligibility, with 62% documenting the patient's age or date of birth, and 29% documenting specific benefits for which the MC+ Managed Care Member was eligible. Specific benefits may not be documented, as the per member per month capitation does not limit MCOs from providing a full array of preventive and intensive mental health services.
2. The reason for case management was indicated in 59% of the cases and was most often due to inpatient admission.
3. Eighty-five percent (85%) of the cases had a provider identified.
4. The results of assessment of care and needs were primarily documented through provider authorization (47%) and caregiver report (29%).

5. A specific treatment plan was found in 29% of the cases. All of those that had a treatment plan had a treatment plan that was appropriate to conditions and for a specific period of time. Also, the treatment plans that were present indicated coordination of care among providers, enrollee participation, and periodic reassessment of enrollee conditions.
6. Twenty-four percent (24%) of the records had treatment goals that were objective and measurable.
7. A majority of the case management cases contained documentation of psychiatric hospitalization (88%), followed by medication (56%), and outpatient therapy (41%).
8. Case management activities consisted primarily of referral (56%), followed by patient education (21%).
9. Community-based services that were documented were primarily case management (12%) followed by Families First (9%), respite care (6%), and family support (6%).
10. Coordination with other entities included residential treatment (15%), Comprehensive Substance Treatment and Rehabilitation (CSTAR; 9%), Intensive Targeted Case Management (6%), and Community Psychiatric Rehabilitation (15%).

Case management records included documentation of a bilingual therapist, coordination with primary care providers, follow-up from psychiatric hospitalization, community-based coordination and referral, utilization management, and documentation of contacts. Some of the limitations that were noted across case management records were that standard utilization review notes comprised the main content of case management, significant case manager turnover (six case managers in a five-week period) occurred, and treatment plans were not updated (for up to a three-and-a-half year period).

Maternal and Child Health Indicators

OBJECTIVE

The Maternal and Child Health (MCH) Indicators were used to examine the impact of the MC+ Managed Care Program on maternal/infant and child health since the inception of the MC+ Managed Care Program; and to compare this progress with Non-Medicaid and MC+ Fee-for-Service recipient groups.

TECHNICAL METHODS

The *Maternal and Child Health Indicators and Trends Report* is compiled quarterly by the Department of Health and Senior Services, Community Health Information Management and Epidemiology Division (DHSS, CHIME) from publicly reported vital health statistics and hospital discharge data sets. Aggregate data from the MC+ Managed Care Program baseline (1995 to the present) were available for the maternal/infant and child health indicators. Data for CY2003 (Calendar Year 2003) were provisional and were estimated to be 99% complete as of March 14, 2004. There were eight maternal/infant indicators examined for the CY2003 review:

1. Initiation of prenatal care in the first trimester
2. Infant low birth weight
3. Cesarean section births
4. Smoking during pregnancy
5. Birth spacing less than 18 months
6. Births to mother 15 to 19 years
7. Repeat births to mothers 15 to19 years
8. Pregnant women enrolled in WIC

There were four child indicators that were examined for trends from CY1997 through CY2002, the most recent available data year. They are:

1. Preventable Hospitalizations
2. Emergency Room Visits
3. Asthma Emergency Room Visits, 4 – 17 years of age
4. Asthma Admissions under age 18 years

Odds ratios for each group on each indicator were calculated for two time points: CY1997 (when the MC+ Managed Care Program was fully implemented in all three MC+ Managed Care Regions) and

CY2003 (for the maternal/infant indicators); or CY2002 (for the child indicators). Data collected prior to full implementation (1995 and 1996) are also included. Comparisons within groups between the baseline and most recent data year that were statistically significant at the 95% confidence level (CI) were considered meaningful change. Given that differences between the MC+ Managed Care Program, Non-Medicaid, and MC+ Fee-for-Service recipient groups (e.g., geography, socioeconomic status, race, baseline health status and risk factors, ethnicity) cannot be controlled in an analysis of group data, this method of examining change over time within each group was considered the most valid approach to examining the impact of the MC+ Managed Care Program. This method also controls for the difference in the baseline rates of these groups.

CONCLUSIONS

The Maternal and Child Health Indicators provide a mechanism for examining trends and the significance of trends among the MC+ Managed Care Program Member, MC+ Fee-for-Service recipient, and the Non-Medicaid (in the MC+ Managed Care Program Regions) groups of women and children in Missouri. The comparison of trends within groups over time provides some control over a variety of demographic variables and allows for examining progress over time within groups. Eight maternal/infant health and four child health indicators that are considered important indices of the impact and progress of the MC+ Managed Care Program were selected for analysis.

In the CY1997-CY2002 comparison, the MC+ Managed Care Program group showed significant gains on four of the eight maternal/infant indicators. In the present analysis, these significant gains were maintained, with the addition of Birth Spacing Less than 18 months (a total of five of the eight indicators). For the CY1997-CY2003 comparison, the MC+ Managed Care Program group continued to demonstrate significantly greater rates of change over time than both the MC+ Fee-for-Service recipient and Non-Medicaid groups on:

- Prenatal Care During the First Trimester
- Birth Spacing Less than 18 Months
- Births to Mothers Younger than 18 Years

All groups showed significant changes in the C-Section rate and the rate of pregnant women enrolled in the Women, Infants, and Children (WIC) Program, in the negative direction. Given the national and statewide trends in C-Section rates, it will be challenging for MCOs to directly impact patient choice and

provider practice. However, the continued collaboration and coordination with local public health agencies (LPHAs) holds promise for improving participation in the WIC Program. An examination of the barriers, needs, and perceptions of patients and providers may provide information for education and outreach efforts.

With regard to the four child health indicators, similar trends were observed in the CY1997-CY2001 and the CY1997-CY2002 comparisons for asthma emergency room visits for children four to 17 years of age, and asthma admissions under age 18 years for the MC+ Managed Care Program and Non-Medicaid groups. The MC+ Managed Care Program group showed significantly greater improvement over time than the Non-Medicaid group on all four of the child health indicators:

- Preventable Hospitalizations Under Age 18
- Emergency Room Visits Under Age 18
- Asthma Emergency Room Visits, 4 – 17 years of age
- Asthma Admissions under age 18 years

RECOMMENDATIONS

1. The EQRO recommends further study to assess MCO interventions to improve the rates of annual preventive dental visits for child MC+ Managed Care Members. Specific indices of access to dental care should be developed and monitored on at least an annual, and if possible, a quarterly basis. Many MCO vendors produce network adequacy analyses for the MCOs as part of their oversight processes. Obtaining and compiling this information as well as other access indices (e.g., time until appointment, consumer satisfaction) from vendors for MC+ Managed Care Members on an MCO or regional basis for review by the Quality Assessment and Improvement (QA & I) Advisory Group and/or DMS is recommended. There are also HEDIS indicators for annual dental visits that may be used annually to monitor access to dental care for children.
2. It is recommended that MCOs and BHOs review their case management processes to determine the extent to which they are in accord with State and federal compliance guidelines. MCOs should audit case management records as part of their subcontractor oversight and quality improvement processes to ensure that 1) measurable, objective treatment plans are present and updated; 2) treatment plan goals are being met; 3) case management continues following psychiatric hospitalization, with appropriate treatment planning for outpatient care; and 4) mental health assessments are being documented.

3. Given the lower than national rates of seven- and 30-day follow-up after discharge from a psychiatric admission, it is recommended that MCOs direct their efforts toward improving these follow-up rates. This is an area for a clinical performance improvement project.
4. The *Maternal and Child Health Trends Report* provides the primary source of data for tracking and trending changes in important public health indicators for the MC+ Managed Care Program and for testing statistical significance of changes over time. They are used for setting priorities each year, and in providing regional level data to MCOs. Thus, it is recommended that data for these indicators continue to be made available by the Department of Health and Senior Services to the Division of Medical Services as soon as it is available; and that the Maternal and Child Health Indicators for the MC+ Managed Care Program, Non-Medicaid, and Fee-for-Service recipient groups continue to be used by DMS for tracking the impact of the MC+ Managed Care Program.
5. The rate of WIC participation should be targeted for improvement by MCOs.

SECTION 3. PERFORMANCE IMPROVEMENT PROJECTS

A Performance Improvement Project (PIP) is defined by the Centers for Medicare and Medicaid Services (CMS) as "a project designed to assess and improve processes, and outcomes of care…. that is designed, conducted and reported in a methodologically sound manner." The *Validating Performance Improvement Projects* protocol specifies that the EQR is to conduct three activities in the validation of two PIPs at each MCO that have been initiated; are underway; were completed during the reporting year; or some combination of these three stages. The first Activity consists of ten steps:

Activity One: Assessing the MCOs /PIHPs Methodology for Conducting the PIP

1. Review the selected study topic(s)
2. Review the study question(s)
3. Review selected study indicator(s)
4. Review the identified study population
5. Review sampling methods (if sampling was used)
6. Review the MCOs/PIHP's data collection procedures
7. Assess the MCOs/PIHP's improvement strategies
8. Review data analysis and interpretation of study results
9. Assess the likelihood that reported improvement is "real" improvement
10. Assess whether the MCO/PIHP has sustained its documented improvement

Activity Two: Verifying PIP Study Findings (optional)

Activity Three: Evaluate Overall Reliability and Validity of Study Findings

The second Activity is optional, and involves verifying PIP study findings through audits of data. Activity Three involves the judgment, based on Activities One and/or Two, of whether the results and conclusions drawn from the PIP are valid and reliable.

Objectives

The objectives of this review of PIPs are to provide the State of Missouri and the MCOs with preliminary review and feedback regarding the nature and quality of the PIPs underway or completed by the MCOs and to identify PIPS that have the potential for credible findings in the future. Activities One

and Three of the *Validation of Performance Improvement Projects* protocol were used as the basis for review of PIP's identified and submitted by MCOs prior to the on-site visits.

The specific objectives of the present review were to:

1. Review each PIP to determine which criteria were met;
2. Identify accomplishments and areas of improvement for conducting PIPs for MCOs;
3. Provide programmatic recommendations regarding the process of implementing PIPs; and
4. Provide recommendations for the implementation of the PIP Validation Protocol for the CY2004 EQR year.

Technical Methods of Data Collection

MCOs were requested to submit reports, worksheets, and findings regarding all PIPs underway or completed during CY2003 by February 2, 2004. All PIPS submitted by MCOs prior to the site visits were reviewed using the checklist for conducting Activities One (steps 1 through 10) and Three (judgment of the validity and reliability of the PIPs) of the protocol. Because specific criteria may not be applicable for projects that are currently underway, the criteria may not have applied in a particular case. Criteria were rated as "met" if the item was applicable to the study of the PIP, if there was documentation addressing the item, or if the item could be deemed met based on the study design. Given that this is a transition year for the State and MCOs in implementing PIPs that meet the CMS criteria, aggregate data across the MCOs are presented. The final evaluation of the validity and reliability of study findings were based on the potential for the studies to produce credible findings. The following are the 35 PIPs that were submitted for review:

Performance Improvement Projects Submitted for Review

1. Asthma Education Pilot Program
2. Asthma Management
3. Authorization Directory
4. Autism Task Force
5. Cervical Cancer Screening Program
6. Complaints, Grievances and Appeals
7. Dispense as Written Physician Outliers
8. Emergency Department Utilization
9. EPSDT
10. EPSDT Coding Changes
11. Evaluation of Indicators of Induction of Labor
12. Grievance and Appeal: Dental and Transportation
13. HEDIS/EPSDT Improvement Project
14. High Risk OB Case Management

15. Improving the Timeliness of Claims Processing (New Directions)
16. Influenza Vaccination Coupon Program
17. Lead Case Management
18. Lead Poisoning Identification
19. Measuring Interventions to Prevent Inpatient Readmission
20. Medical Transportation Management
21. Member Advocate
22. NICU Focused Study
23. Pediatric Utilization and Outcomes
24. Perinatal Outcomes
25. Pharmacy Cost
26. Prenatal Risk Factors: Domestic Violence Identification
27. Prenatal/High Risk Prenatal Management
28. Provider Access Monitoring Survey
29. Racial and Ethnic Health Disparity
30. Root Canal Follow-up Reminders
31. School-Based Dental Program
32. School-Based Program
33. Timelines of Utilization Management Decision Making
34. Tracking Prenatal Care
35. Transportation No-Show

Findings

The objective of a PIP is to target a clinical or non-clinical issue with an intervention that is powerful enough to generate outcome or process or change. A scientific approach includes valid sampling, use of standard measurement techniques, and statistical analysis. In some cases, the PIPs that were submitted were simply spreadsheets of the indicators of change over time, with no accompanying narrative, intervention, study plan, or findings. Several MCOs submitted lengthy "worksheets" describing various aspects of their performance improvement projects. Other PIPs submitted consisted of a list of preauthorization criteria, utilization management reports, methods for monitoring UM decision making, and the tracking of admission rates. In cases of MCOs operating in more than one MC+ Managed Care Region or MCOs serving other member populations (e.g., Medicare, other State Medicaid program, or commercial members), it was difficult to determine whether the population studied was inclusive of other study populations or regions.

Table 13 presents a summary of the items reviewed for each step of the protocol, and the number and percent of each criteria met. Only those items that were applicable for each PIP were considered as met or not met.

Table 13. PIP Review Criteria and Findings

COMPONENT/STANDARD	NUMBER PIPS REVIEWED = 35		
Step 1. REVIEW THE SELECTED STUDY TOPIC(S)	**# Met**	**# App.**	**% Met**
1.1 Was the topic selected through data collection and analysis of comprehensive aspects of enrollee needs, care and services?	19	27	70.3%
1.2. Did the MCOs PIPs, over time, address a broad spectrum of key aspects of enrollee care and services?	20	25	80.0%
1.3. Did the MCOs PIPs over time, include all enrolled populations; i.e., did not exclude certain enrollees such as those with special health care needs?	12	27	44.4%
Step 2: REVIEW THE STUDY QUESTION(S)	**# Met**	**# App.**	**% Met**
2.1. Was/were the study question(s) stated clearly in writing?	8	27	29.6%
Step 3: REVIEW SELECTED STUDY INDICATOR(S)	**# Met**	**# App.**	**% Met**
3.1. Did the study use objective, clearly defined, measurable indicators?	21	28	75.0%
3.2. Did the indicators measure changes in health status, functional status, or enrollee satisfaction, or processes of care with strong associations with improved outcomes?	15	27	55.5%
Step 4: REVIEW THE IDENTIFIED STUDY POPULATION	**# Met**	**# App.**	**% Met**
4.1. Did the MCO/PIHP clearly define all Medicaid enrollees to whom the study question and indicators are relevant?	18	27	66.7%
4.2. If the MCO/PIHP studied the entire population, did its data collection approach capture all enrollees to whom the study question applied?	10	24	41.7%
Step 5: REVIEW SAMPLING METHODS	**# Met**	**# App.**	**% Met**
5.1. Did the sampling technique consider and specify the true (or estimated) frequency of occurrence of the event, the confidence interval to be used, and the margin of error that will be acceptable?	9	25	36.0%
5.2. Did the MCO/PIHP employ valid sampling techniques that protected against bias?	10	24	41.7%
5.3. Did the sample contain a sufficient number of enrollees?	8	25	32.0%
Step 6: REVIEW DATA COLLECTION PROCEDURES	**# Met**	**# App.**	**% Met**
6.1. Did the study design clearly specify the data to be collected?	15	27	55.0%
6.2. Did the study design clearly specify the sources of data?	17	27	63.0%
6.3. Did the study design specify a systematic method of collecting valid and reliable data that represents the entire population to which the study's indicators apply?	14	26	53.8%
6.4. Did the instruments for data collection provide for consistent, accurate data collection over the time periods studied?	14	27	51.9%
6.5. Did the study design prospectively specify a data analysis plan?	10	27	37.0%
6.6. Were qualified staff and personnel used to collect the data?	11	27	40.7%
Step 7: ASSESS IMPROVEMENT STRATEGIES	**# Met**	**# App.**	**% Met**
7.1. Were reasonable interventions undertaken to address causes/barriers identified through data analysis and QI processes undertaken?	15	27	55.5%
Step 8: REVIEW DATA ANALYSIS AND INTERPRETATION OF STUDY RESULTS	**# Met**	**# App.**	**% Met**
8.1. Was an analysis of the findings performed according to the data analysis plan?	10	21	47.6%

COMPONENT/STANDARD	NUMBER PIPS REVIEWED = 35		
8.2. Did the MCO/PIHP present numerical PIP results and findings accurately and clearly?	14	23	60.9%
8.3. Did the analysis identify: initial and repeat measurements, statistical significance, factors that influence comparability of initial and repeat measurements, and factors that threaten internal and external validity?	6	24	25.0%
8.4. Did the analysis of study data include an interpretation of the extent to which its PIP was successful and follow-up activities?	10	20	50.0%
Step 9: ASSESS WHETHER IMPROVEMENT IS "REAL" IMPROVEMENT	**# Met**	**# App.**	**% Met**
9.1. Was the same methodology as the baseline measurement, used, when measurement was repeated?	11	21	48.1%
9.2. Was there any documented, quantitative improvement in processes or outcomes of care?	11	22	50.0%
9.3. Does the reported improvement in performance have "face" validity; i.e., does the improvement in performance appear to be the result of the planned quality improvement intervention?	11	25	44.4%
9.4. Is there any statistical evidence that any observed performance improvement is true improvement?	6	22	27.3%
Step 10:ASSESS SUSTAINED IMPROVEMENT	**# Met**	**# App.**	**% Met**
10.1. Was sustained improvement demonstrated through repeated measurements over comparable time periods?	11	20	55.0%

Source: MCO Performance Improvement Project Review, BHC, Inc., , 2004

The review of the study topics selected indicated that 80.0% of the PIPs addressed a broad spectrum of key aspects of enrollee care and services, 70.3% addressed topics through data collection and analysis of enrollee needs, care and services; 66.7% clearly defined the enrollees to whom the study question applied; and 44.4% of the PIPs included all enrolled populations.

Fewer (29.6%) clearly stated in writing the study questions. Study indicators were objective, clearly defined and measurable in 75.0% of the PIPs, and 55.3% of them met the criteria for measuring changes in health status, functional status, or enrollee satisfaction of processes of care that were associated with care of improved outcomes. Sixty-seven percent (66.7%) of the PIPs clearly defined the enrollees to whom the study indicators were relevant; and 41.7% of the PIPs included the MCOs entire population.

Sampling methods were employed and specified the frequency of occurrence of events, confidence intervals and margins of error in 36.0% of the PIPs; and valid sampling techniques were described in 41.7% of the PIPs, with 32.0% containing a sufficient number of enrollees.

Data collection procedures clearly specified the data to be collected in 55.0% of the cases, with the study design clearly specifying the sources of data in 63.0% of the cases. The study design specified a systematic method of collecting valid and reliable data in 53.8% of the cases, with 51.9% describing instruments with consistent and accurate data collection over the time periods studied.

The study design specified a data analysis plan prospectively in 37.0% of the PIPs, and qualified staff and personnel were used to collect the data in 40.7% of PIPs. Reasonable interventions were undertaken to address causes and barriers identified through data analysis in 55.5% of the PIPs.

For criteria on data analysis and interpretation, 25.0% to 60.9% of the PIPs met the criteria for adequate data analysis, accuracy and clarity of findings, and discussion of internal or external validity as well as interpretation of the extent to which the PIP was successful.

The final step, to assess whether improvement is "real improvement" was examined. Nearly half or fewer (27.3 to 50.0%) of the PIPs described a consistent methodology across measurement points; documented the magnitude of improvement in outcomes or processes; were able to document a connection between the result and intervention; or presented statistical evidence that the improvement was "true improvement". None of the PIPs assessed improvement through repeated measurements using statistical analysis and comparisons. Four of the 35 (11.4%) PIPs were considered to possess a high potential for credible findings. Performance improvement projects with potential for producing credible findings included the Asthma Pilot Program (HealthCare USA); Member Advocate and School-Based Programs (HealthCare USA); and the Evaluation of Indications of Induction of Labor (Missouri Care).

Conclusions

It is clear that MCOs are implementing a number of quality improvement activities to address key issues of enrollee needs and outcomes. The number of PIPs meeting specific criteria developed by the CMS across MCOs was examined. The MCOs were best able to identify broad spectrums of key aspects of enrollee care and services (80.0%); identify objective, clearly defined, and measurable indicators (75.0%); select topics based on data from aspects of enrollee needs, care and services (70.3%); clearly define the enrollees to whom the study question applies (66.7%); and clearly specify the sources of data (63.0%).

Areas which were more challenging for the MCOs in defining and conducting PIPs included: sampling (32.0%); clearly stating the study question (29.6%); conducting statistical analysis as a basis for concluding whether the results of the intervention accounted for change (27.3%); identifying initial and repeat measures; and identifying statistical significance of the findings and factors that need to either be controlled or considered in interpreting results (25.0%). This review of PIPs was complicated by the fact that the information submitted for review was difficult to evaluate based on limited or no narrative; or extensive checklists that were incomplete or presented repetitive information without providing a

complete picture of a PIP. Also, it appears that MCOs have difficulty identifying the distinction between a PIP and a quality improvement process; and the need to clearly document questions, the nature and extent of interventions, and to conduct statistical comparisons on targeted processes or outcomes. It appeared that many of the PIPs were completed as normal monitoring and tracking of utilization management and services, with relatively little planning and prospective design of a study targeting a particular clinical or non-clinical process or outcome.

Recommendations

1. At the time of this review, MCOs were not required to conduct clinical or non-clinical PIPs on uniform topics. The State may wish to consider the advantages and disadvantages of requiring a PIP that is applied in a standard manner across all MCOs. Another option would be to identify two PIPs for review, one PIP that would be the same across MCOs, and one PIP that would be chosen by the MCO for continuation from 2003 into 2004. Examining individual MCO PIPs for common outcomes will provide an opportunity to test various interventions and identify best practices.
2. It is recommended that MCOs continue to include Quality Improvement (QI) & Utilization Management (UM) staff in the design, development and implementation of PIPs, as well as individuals with expertise in data processing/management; research methodology and design; and statistical analysis.
3. MCOs will need to more clearly follow standard research and quality improvement methodology and design for developing, planning, implementing, and analyzing performance improvement projects. To implement a successful PIP, the MCO may have to shift existing resources, add targeted resources, include educational efforts to clients and providers, and change policies and procedures.
4. It is recommended that MCO QI Directors and staff participate in training specific to the planning and implementation of PIPs. During the site visits, several MCOs expressed interest in technical assistance and training in this area. A statewide workshop which provides hands-on experience for developing a PIP problem statement, methodology, data collection procedures, and analyses is recommended. This may also be an area of focus for the Maternal and Child Health Subgroup. Presentations on available public health data collected by state agencies and the potential use of that data could be incorporated into routine meetings.
5. The CMS protocols for the conducting and validating PIPs provide succinct and clear outlines for planning and reporting the findings of PIPs. It is highly recommended that MCOs consider these items when conducting PIPs.

SECTION 4. CHILDHOOD LEAD POISONING FOCUSED STUDY

Lead poisoning is a significant issue for Missourians and for MC+ recipients statewide. The State of Missouri has made substantial efforts to improve the screening of children for elevated blood lead levels using the Healthy Children and Youth (HCY) and HCY Lead Risk Assessment Guide (LRA). Blood lead level (BLL) testing is required for all children enrolled in the MC+ Managed Care Program, at 12 and 24 months of age. The Missouri Department of Health and Senior Services (DHSS) has implemented a statewide, mandatory reporting system for reporting BLLs. Information regarding MC+ Managed Care Members with BLLs of 10 µ/dL or greater was shared with the DMS on a weekly basis. The DMS forwarded the list of MC+ Managed Care Members with elevated blood lead levels (EBLs; 10 µ/dL or greater) to the respective MCOs for follow-up and screening for case management needs. Findings from the 2002 MC+ Managed Care External Quality Review indicated that the mandatory reporting system by laboratories in Missouri was operational, but not capturing all blood lead levels (e.g., those that were not elevated). This process was expanded to include results for all children who may have received BLL testing so that the MCOs could document this information and forward it to providers for inclusion in the medical record.

The MCOs use a variety of strategies to monitor provider compliance with verbal lead screening and BLL testing requirements. Provider education is conducted through distribution of State of Missouri forms and guidelines, on-site visits and newsletters. Two MCOs (HealthCare USA and Missouri Care) include the review of compliance to lead screening and BLL testing in their annual medical record reviews. All MCOs conduct HEDIS chart reviews that provide the rates of completion of EPSDT, of which a component is the implementation of the verbal lead screen. Summaries of findings are shared with providers and more intensive follow-up with individual providers is conducted as needed. In addition to provider education, four of the MCOs (Community Care Plus, HealthCare USA, Missouri Care, Blue Advantage Plus) mail birthday cards or postcards to parents when the child is 12 and 24 months of age to remind them to make a well child appointment and to include a BLL test.

A focused study on the rates of verbal lead screening, BLL testing, EBL, and case management was conducted to identify progress in identifying and treating MC+ Managed Care Members with EBLs.

Objectives

The objective of this focused study is to provide information about the rates and process of verbal lead screening, mandatory blood lead level testing, lead poisoning prevalence, and case management processes. Specifically, the following questions were addressed:

1. What is the rate of verbal lead screening for MC+ Managed Care Members?
2. What are the risk factors for EBL in MC+ Managed Care Members?
3. Are children with positive responses to lead exposure screening questions tested for EBLs?
4. What is the rate of BLL testing for MC+ Managed Care Members?
5. What is the prevalence of EBL in MC+ Managed Care Members?
6. What services are children receiving after identification of lead poisoning?

Technical Methods of Data Collection

Sampling

A statewide random sample of MC+ Managed Care Members was drawn for medical record review of documentation of verbal lead screening and mandatory BLL testing. MCOs were requested to submit case management records of MC+ Managed Care Members receiving case management for EBL during 2003.

The sample population was defined as MC+ Managed Care Members six to 72 months of age during CY2003 who were continuously enrolled in a MCO for one year or [if under age 12 months] since birth with at least one encounter claim with a date of service during the measurement year (CY2003). The sample was selected from the 2003 State enrollment and encounter claims databases. The goal was to obtain 420 medical records per MC+ Managed Care Region, proportional to the MCO MC+ Managed Care Member population in this age range. Oversampling of 100% was conducted due to previous experience of a 50% medical record submission rate. The target of 420 cases was exceeded in all three MC+ Managed Care Regions, with a distribution across MCOs comparable to the MCO MC+ Managed Care Member population in each MC+ Managed Care Region. Multiple records from multiple providers for one case were combined and counted as one case. The maximum number of providers contributing to one individual was nine. A total of 2,914 requests for medical records were made for 2,520 cases. This included requests of medical records for 72 cases for which case management records were submitted by MCOs. A total of 340 cases had more than one request. A medical record from at least

one provider was received on 1,446 cases, resulting in a submission rate of 60.6% (1,446 of 2,384 cases) statewide.

Three hundred seventy-five providers responded to the medical record request in some way by sending records that were deemed not pertinent to the study, stating that they had no records related to lead testing and screening for the child. Responses to the request indicated that they did not have any data for 2003 for the MC+ Managed Care Members; or they had no information at all for the MC+ Managed Care Member. However, the sample was derived from encounter claims such that the provider was only sampled if there was a 2003 encounter claim. Several reasons for this discrepancy were identified:

1. A new physician could have been added to the practice, but billing was done in the name of the credentialed provider until the new provider was credentialed by the MCO.
2. A pediatric or family practice resident was the child's primary care provider, but the claim was submitted to the MCO with the supervising physician's name.
3. When health departments submitted claims for lead testing and immunizations, the claim was submitted under the name of the LPHA Medical Director.
4. In cases when the claim was for inpatient hospital care at children's hospitals in Kansas City and St. Louis, some physicians only supervised the hospital care but were not the child's PCP. Hence, the claim was submitted with the name of the hospital-based physician, rather than the attending physician or PCP.

Table 14 shows the sample population for each MCO, the proportion of the sample population in each MCO, the sample size requested, the target goal for medical records, and the number of cases submitted. The proportional random sampling at the regional level allows for MC+ Managed Care Region to MC+ Managed Care Region comparisons and analyses.

In addition to the random sample request, case management records for members in case management for lead poisoning during 2003 were requested from each MCO. Ten cases were requested from and selected by the MCOs. MCOs submitted a total of 71 case management records. Medical records for all of these cases were also requested from providers for separate analysis. Fifty-two of the medical records for those receiving case management (72.2%) were received. These cases were separated from the 1,446 for analysis. Another 44 cases of the 1,446 did not contain reviewable information for 2003, and were excluded from analysis. This left 1,351 cases for the present analysis.

Table 14. Return Rates for Medical Record Review by MCO and MC+ Managed Care Region

MCO	Sample Population	MC+ Managed Care Region %	Sample	Target	# Submitted	% of Target	% of MC+ Managed Care Region Represented
Eastern Region							
Community Care Plus	5,922	16.2%	136	68	93	136.8%	17.6%
HealthCare USA	25,925	70.9%	595	298	370	124.2%	70.2%
Mercy Health Plan	4,744	13.0%	109	54	64	118.5%	12.1%
Subtotal	**36,591**	**100.0%**	**840**	**420**	**527**	**125.5%**	**100.0%**
Central Region							
HealthCare USA	6468	50.5%	424	212	200	94.3%	54.2%
Missouri Care	6340	49.5%	416	208	169	81.3%	45.8%
Subtotal	**12,808**	**100.0%**	**840**	**420**	**369**	**87.9%**	**100.0%**
Western Region							
Family Health Partners	9,827	36.9%	310	155	213	137.4%	38.7%
FirstGuard	8,703	32.7%	274	137	173	126.3%	31.5%
HealthCare USA	1,163	4.4%	37	18	18	100.0%	3.3%
Blue Advantage Plus	6,953	26.1%	219	110	146	132.7%	26.5%
Subtotal	**26,646**	**100.0%**	**840**	**420**	**550**	**131.0%**	**100.0%**
Total	**76,045**		**2,520**	**1,260**	**1,446**	**114.8%**	

Source: Medical Record Review. BHC, Inc., 2004

Methods

The sample was selected from the State enrollment and encounter claims databases and forwarded to MCOs to provide information on the PCP of record for mailing the medical record requests. This listing was returned to BHC, Inc. for coordinating the collection and organization of medical records.

Registered Nurses experienced in maternal child health care, quality improvement, and medical record abstraction were engaged by Reliable Health Care, Inc., to conduct the medical record review. Standard abstraction protocols were developed to provide the nurse reviewers with instructions for completing medical record reviews in a consistent and complete manner (see Appendix D). Medical record review training regarding specific elements of Early, Periodic, Screening, Diagnosis, and Treatment (EPSDT) and prenatal care was carried out by BHC, Inc. over a four-day period, followed by interrater reliability (IRR) to a minimum of 90% accuracy. Evidence of verbal lead screens was considered present when a progress note, HCY Form (Section V), or LRA indicated completion of a screen. Blood lead level

testing was recorded as present when there was evidence of a laboratory report or progress note on venous or capillary sampling. Data quality was monitored by BHC, Inc., on a daily basis throughout the abstraction and data entry processes, and inconsistencies identified during the monitoring process were corrected. All personally-identifiable information was treated as privileged and confidential in accordance with the Health Insurance Portability and Accountability Act (HIPAA), and abstracted information was entered into customized databases via a secure web site. Software used for data analyses included Microsoft Access and Excel; and the Statistical Package for the Social Sciences (SPSS®, v. 12.0.)

Findings

Table 15 shows the distribution of medical records reviewed by the age of MC+ Managed Care Members as of December 31, 2003. The majority of the population was 25 to 72 months of age (50.8%).

Table 15. Medical Record Cases by Age.

Age	Frequency	Percent
6-11 months	79	5.8%
12 months	307	22.7%
24 months	279	20.7%
25-72 months	686	50.8%
Total	**1,351**	**100.0%**

Source: Medical Record Review. BHC, Inc., 2004

1. What is the rate of verbal lead screening for MC+ Managed Care Member?

All children under six years of age are required to receive a verbal lead screening to identify the presence of risk factors for blood lead poisoning. The LRA, developed by the DHSS in collaboration with the DMS, contains eight questions for assessing risk. If a parent responds positively to one or more of these items, a blood lead test is to be conducted. This can be accomplished through a venipuncture or capillary sampling performed in the office or a laboratory. Table 16 shows the rates of verbal lead screening by MC+ Managed Care Region.

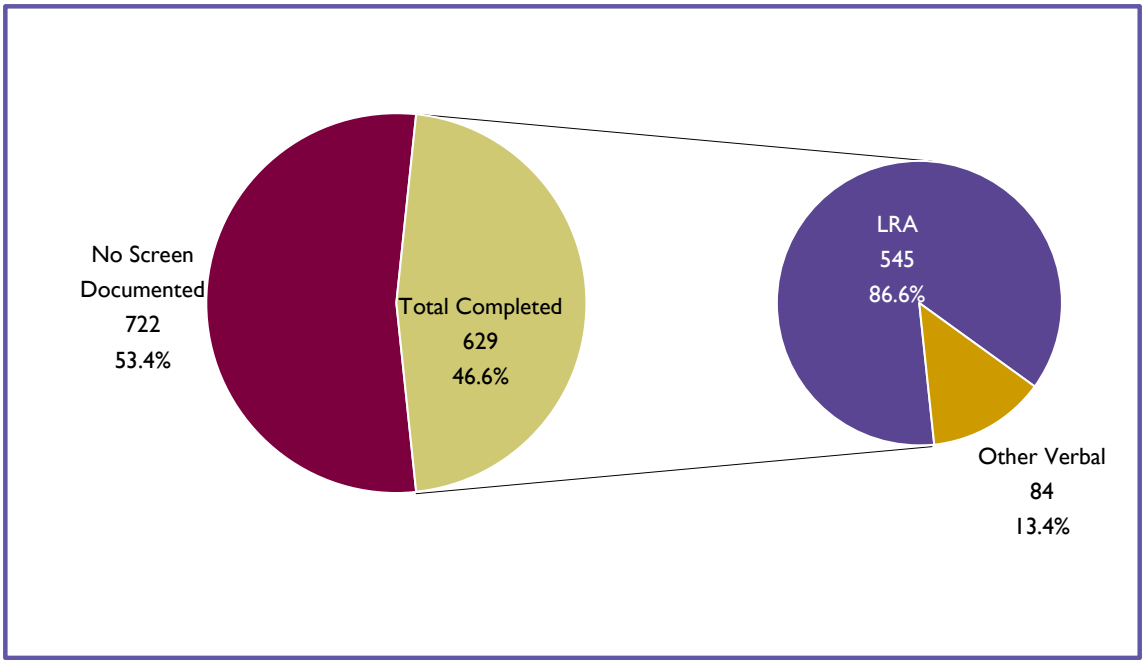
Table 16. Verbal Lead Screening by MC+ Managed Care Region

MC+ Managed Care Region	Screen Documented	% Documented	Total
Central	165	46.7%	353
Eastern	244	50.1%	487
Western	220	43.1%	511
Total	**629**	**46.6%**	**1,351**

Source: Medical Record Review. BHC, Inc., 2004

To assess the rate of verbal lead screening completed, medical records were examined for the presence of a LRA or other form of documentation of a verbal lead screen (e.g., the Healthy Children and Youth Form). Figure 7 shows the numbers of cases for which at least one verbal lead screen was conducted during 2003. A total of 629 of the 1,351 medical records contained documentation of a verbal lead screen (46.6%). This represents an improvement since last year (36.0%). Of the 629 records with a verbal lead screen documented, 545 (86.6%) contained a LRA, while the remainder (13.4%) contained other documentation of a verbal lead screen. This rate of use of the LRA represents an improvement over last year's rate (73.9%).

Figure 7. Lead Risk Assessment and Other Verbal Lead Screening



Source: Medical Record Review. BHC, Inc., 2004

The results of the verbal lead screening are presented in Table 17, by MC+ Managed Care Region. Of the 629 cases receiving a verbal lead screen, 273 (43.4%) had documentation of at least one positive verbal lead screen. This represents an increased rate of positive verbal lead screening from last year (34.3%).

Table 17. Verbal Lead Screening Results

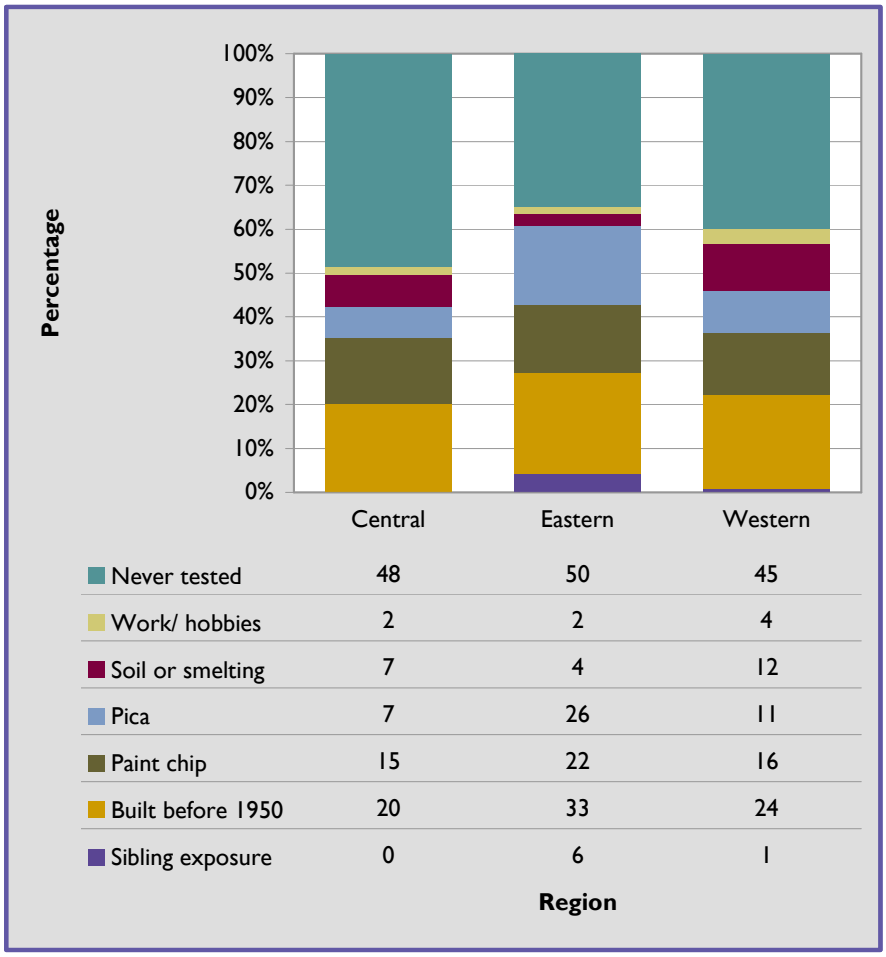
MC+ Managed Care Region	Results					
	Positive	%	Negative	%	Unknown	%
Eastern	114	23.4%	125	25.7%	5	1.0%
Central	77	21.8%	83	23.5%	5	1.4%
Western	82	16.0%	127	24.9%	11	2.2%
Total	**273**	**20.2%**	**335**	**24.8%**	**21**	**1.6%**

Source: Medical Record Review. BHC, Inc., 2004

2. What are the risk factors for EBL in MC+ Managed Care Members?

Two hundred and fifty (250) of the 545 children (45.9%) who had a LRA completed responded affirmatively to at least one of the eight items. Figure 8 shows that the primary risk factor is that the child had never been tested; followed by eating non-food substances (Pica, in the Eastern MC+ Managed Care Region) and living in housing built before 1950. The risk factor of folk medicine/remedies was endorsed once, and is not represented in the figure.

Figure 8. Distribution of LRA items Endorsed, by MC+ Managed Care Region



Source: Medical Record Review. BHC, Inc., 2004

3. *Are children with positive responses to lead exposure screening questions tested for EBLs?*

   To evaluate the follow-up of positive verbal lead screening with a BLL, the cases in which a verbal lead screening was conducted were compared with documentation of a BLL test in the medical record. If a BLL test occurred within the three months following the positive response, the case was counted as having been followed-up with a BLL. Twenty-nine of the 273 cases (10.6%) with a positive response on the verbal lead screening received a BLL within the three-month time period of the positive response.

4. *What is the rate of BLL testing for MC+ Managed Care Members?*

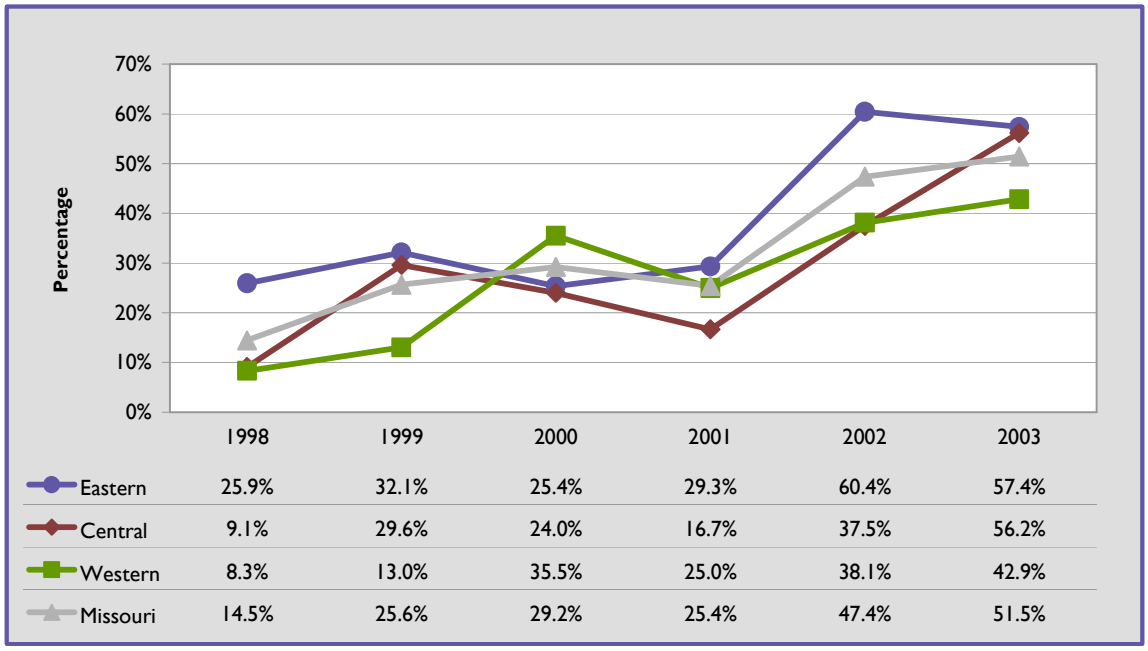
   Occurrences of a BLL test one month prior to the 12th and 24th month birthday and up to 3 months following the birthday were considered as having met the requirement for mandatory BLL testing. Table 18 shows the number of cases with at least one BLL test (venous or capillary sampling) documented in the medical record. A total of 446 cases in the sample of 1,351 (33.0%) received at least one BLL test in 2003. This is higher than the rate found last year (25.9%). Fifty-one percent (51.5%) of the 12-month-olds and thirty-nine percent (38.7%) of the 24-month-olds received mandatory BLL testing during 2003 (see Figures 9 and 10). All MC+ Managed Care Regions showed increases in BLL testing at 12- and 24-months of age. The Eastern MC+ Managed Care Region showed higher rates at both ages; the Central MC+ Managed Care Region showed the greatest improvement over the last 2 years for the 24-month BLL, but continued to lag behind the other two MC+ Managed Care Regions; and the Western MC+ Managed Care Region rate was somewhat low for the 12-month-old BLL tests. An additional seventy-two 72 (5.3%) cases had documentation that the provider had referred the child for blood lead testing, but the test was not conducted.

Table 18. Number of Cases with at Least 1 BLL by Age Group

Age Group	At least one BLL	N Cases	% Tested	# BLL>=10	% BLL>=10
6-11 months	5	79	6.3%	1	20.0%
12 months	158	307	51.5%	9	5.7%
24 months	108	279	38.7%	9	8.3%
25 – 72 months	175	686	25.5%	14	8.0%
Total	**446**	**1,351**	**33.0%**	**33**	**7.4%**

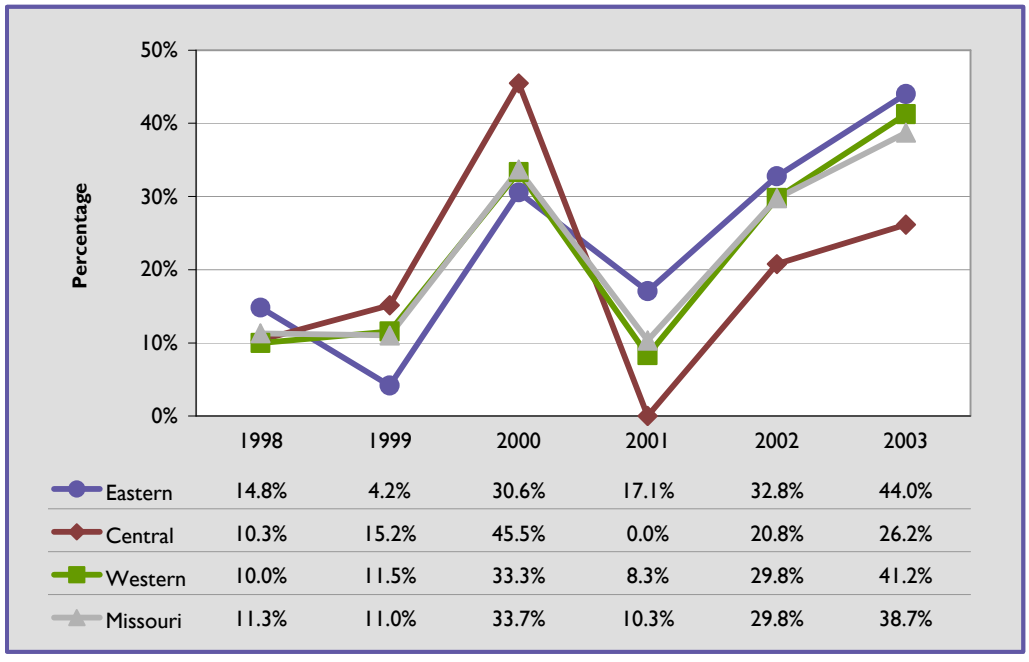
Source: Medical Record Review. BHC, Inc., 2004

Figure 9. MC+ Managed Care Member Blood Lead Levels Drawn at 12 Months of Age



Sources: External Quality Review Organization Reports, 1998 – 2001, Missouri Patient Care Review Foundation; Medical Record Reviews. BHC, Inc., 2003, 2004

Figure 10. MC+ Managed Care Member Blood Levels Drawn at 24 Months of Age



Sources: External Quality Review Organization Reports, 1998 – 2001, Missouri Patient Care Review Foundation; Medical Record Reviews. BHC, Inc., 2003, 2004

Table 19 shows the number of BLL tests conducted by age group. Of the 483 tests conducted, 418 (86.5%) were conducted with unique individuals; with the remainder (13.5%) representing follow-up tests during 2003. The 12- and 24-month-olds were more likely to receive two or three BLL tests during CY2003, possibly due to findings of lead poisoning and follow-up testing. The age group accounting for the greatest number of BLLs was the 25- to 72-month-old age group (180 of 483; 37.3%). These likely represent follow-up BLLs being conducted after the 24-month BLL for children with lead poisoning.

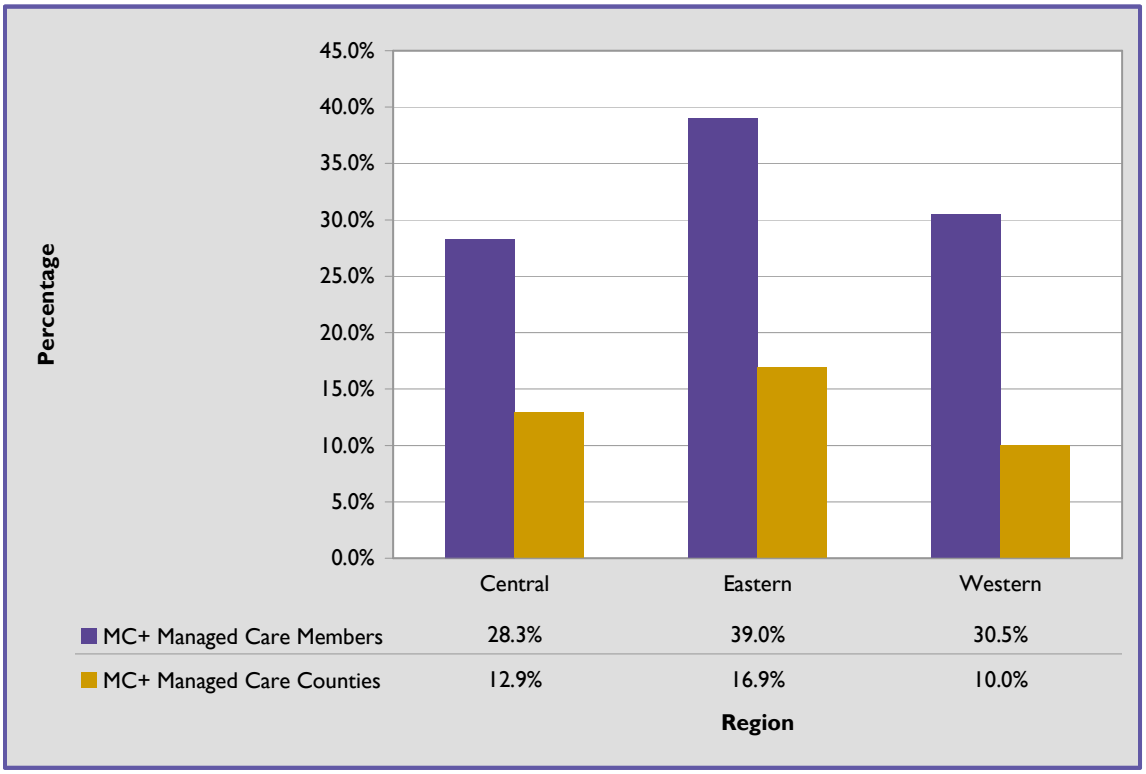
Table 19. Number of BLLs by Age Group

Age Group	1 Test	2 Tests	3 Tests	4 Tests	Total Tests	# BLL >=10	% BLL >=10
6-11 months	5	0	0	0	5	1	20.0%
12 months	148	6	2	2	174	13	7.5%
24 months	95	10	3	0	124	15	12.1%
25 – 72 months	170	2	2	0	180	16	8.9%
Total	**418**	**18**	**7**	**2**	**483**	**45**	**9.4%**

Source: Medical Record Review. BHC, Inc., 2004

In addition to the comparison of BLL rates over time, a comparison of BLL rates for children under 72 months of age was made with data from the DHSS. The rate of BLL screening found in the medical record review of MC+ Managed Care Members (who were seen by a physician during calendar year 2003) was compared with the rate of BLL screening found in the general population of children in the same counties. Figure 11 shows the rate of BLL testing in MC+ Managed Care Members and children in MC+ Managed Care Counties for each MC+ Managed Care Region. The rate of BLL testing in MC+ Managed Care Members who were seen by a physician is more than twice that of the general population of children (who may not have seen a physician) in the counties in which the MC+ Managed Care Program operates.

Figure 11. Rate of BLL Testing for MC+ Members and MC+ Managed Care Counties

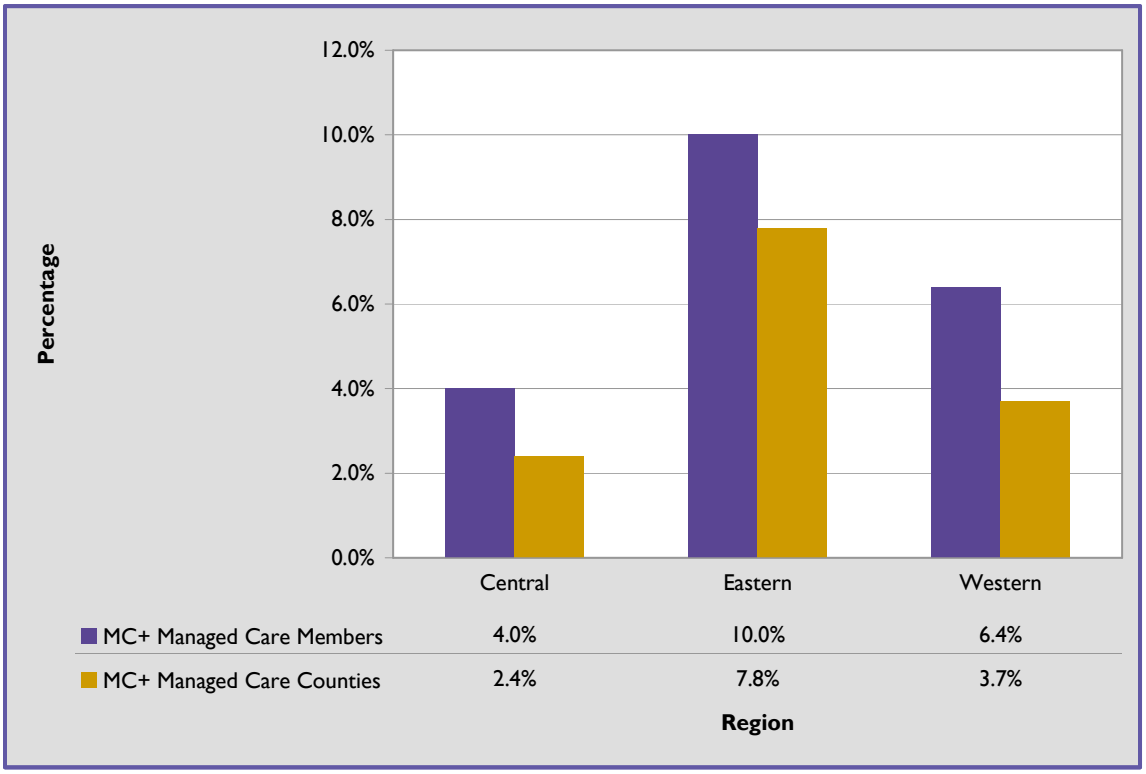


Source: Medical Record Review. BHC, Inc., 2004; Missouri Department of Health and Human Services, Fiscal Year 2003 Blood Lead Testing Data; July 1, 2002 through June 30, 2003; Children Less than Six MC+ Managed Care Counties

5. *What is the prevalence of EBL in MC+ Managed Care Members?*

The rate of EBL, or lead poisoning among MC+ Managed Care Members receiving a BLL in 2003 was examined. Tables 18 and 19 (presented earlier) show the number of cases and tests by age, with the corresponding rates of BLLs that were 10 µ/dL or greater. Across all ages, the rate of BLL greater than or equal to 10 µ/dL was 7.4%. Figure 12 illustrates that the prevalence of EBL was higher in the MC+ Managed Care Member population (7.4%) seen by a physician in 2003 than in the general population of children residing in MC+ Managed Care Counties (6.2%). The rate of EBL was higher for the 24-month-olds (8.3%) than for the 12-month-olds (5.7%; Table 18). However, the rate of BLL testing for the 24-month-olds (38.7%) was lower than for the 12-month-olds (51.5%), indicating a need to continue to monitor and enforce BLL testing in the 24-month age group (see Table 18).

Figure 12. Prevalence of EBL for MC+ Members and MC+ Managed Care Counties



Source: Medical Record Review. BHC, Inc., 2004; Missouri Department of Health and Human Services, Fiscal Year 2003 Blood Lead Testing Data; July 1, 2002 through June 30, 2003; Children Less than Six MC+ Managed Care Counties

6. What services are children receiving after identification of EBL?

To answer this question, records of MCO case management for children with lead poisoning were reviewed. A total of 72 records were requested. Fifty-two medical records for children receiving lead case management were obtained. One case was excluded, providing 51 cases for analysis. Table 20 shows the proportion of MC+ Managed Care Members enrolled in lead case management at each MCO, which ranged from 8% to 46% across MCOs.

Table 20. Total Number of MC+ Managed Care Members Receiving Case Management for EBL in 2003 by MCO

MCO	MC+ Managed Care Members in Lead CM	Total in CM	% of total in Lead CM
Community Care Plus	322	695	46%
HealthCare USA	772	7,402	10%
Mercy Health Plan	167	578	29%
Missouri Care	115	662	17%
Family Health Partners	100	784	13%
FirstGuard	98	2,366	4%
Blue Advantage Plus	55	711	8%
Total	**1,629**	**13,198**	**12.3%**

Source: Pre-On Site Visit Protocol. BHC, Inc., 2004

Medical record data were analyzed to examine the extent to which providers documented blood lead testing and results, case management, and coordination of care. After examining the number of children with documented BLLs in their medical record, the medical record was reviewed for any indication of whether or not case management was initiated by the provider, or whether the provider was aware of other entities conducting case management for lead poisoning.

Fifty of the fifty-one (98.0%) children in lead case management had documentation of at least one BLL test in the medical record. Across all 51 cases, there were 102 total BLL tests documented in the medical record, with 93 (91.2%) of them elevated at 10 µ/dL or greater. Eight (5.7%) of the children in lead case management had a BLL below 10 µ/dL documented in the medical record, while 43 (84.3%) had at least one EBL test documented in the medical record (see Table 21). Thus, the EBL is not always recorded in the medical record. This data suggests that 15.6% of children with EBLs were identified for case management through processes other than the provider of record in 2003. The transmission of BLL test results to the MCOs from the DHSS via the DMS may have identified children with lead poisoning that otherwise would not have been detected by the primary care provider. This could be also due to the MC+ Managed Care Member having changed a

provider after BLL testing, or receiving a BLL test at a LPHA. Another possibility is that the lead level is not reported to the provider for the child because of reported improper use of maternal identifying numbers by laboratories.

Table 21. Cases with One or More EBL

BBL Results	N Cases	% Cases	N Tests
No BLL>=10	8	15.6%	8
BLL=10	43	84.3%	93
Total	**51**	**100.0%**	**102**

Source: Medical Record Review. BHC, Inc., 2004

Table 22 shows the cases for which there were EBLs for the children in case management. The majority had either one (37.2%) or two (32.6%) EBLs documented in the medical record. The mean number of EBL tests for children in lead case management was 2.2. Although it was known that the MCO was conducting case management for all of the cases, it was of interest to determine whether the provider was aware of the MCO, other entities, or their own office conducting case management for children with EBLs. Thirty-three (64.7%) of the 51 medical records for children in lead case management had documentation of case management either by the physician, a LPHA, the MCO, or another entity. In many cases, there was more than one source of case management identified in the medical record (up to three sources; see Table 23). The most common source for case management was the provider (81.7%), followed by other entities (unspecified, 13.3%), and the LPHAs (5.0%). Ten (5.1%) records documented case management by the MCO. This suggests that information regarding care coordination and case management by the MCO is not well documented in the medical record.

Table 22. Cases with EBLs

Number of BLL>=10	N Cases	Percent
1	16	37.2%
2	14	32.6%
3	6	14.0%
4	5	11.6%
5	1	2.3%
6	1	2.3%
Total	**43**	**100.0%**

Source: Medical Record Review. BHC, Inc., 2004

Table 23. Lead Case Management Documented in Medical Records

Source	N	%
Provider	49	81.7%
LPHA	3	5.0%
Other	8	13.3%
Total	**60**	**100.0%**

Source: Medical Record Review. BHC, Inc., 2004

To assess the extent of case management activities conducted by the MCOs, case management records were reviewed using a standard tool developed specifically for this study. This tool was developed based on literature review and guidelines for case management from the Division of Medical Services and Centers for Medicare and Medicaid Services. The tool included items relating to screening, surveillance, assessment and diagnosis, case management and referrals, environmental interventions, medical interventions, community involvement, and continued evaluation. Each case was rated on each item whether it was met, not met, or not applicable (e.g., testing other sibling when there are no other siblings, or communicating termination to another MCO, or PCP).

Table 24 shows the results of the case management review of the fifty-one management records for which there were corresponding medical records. Case management records reflected activities such as conducting BLLs on schedule at 12- and 24-months, reporting EBLs to other entities, chelation therapy, communicating results to family services, applying criteria for entry and exit from case management, sending letters and making phone calls for missed appointments, home visits, family education, physical assessment, review, obtain mandatory lab reports, quarterly additional home inspection. The least frequently reported activities included advocacy for family and parental support, identification of other family needs for health services or financial assistance, completing the LRA, testing other siblings, and identifying the source of lead exposure.

Table 24. Frequency of Case Management Activities

Screening	**% Met (N = 51)**
LRA completed in 2003	**53%**
BLL done per schedule at 12 and 24 months, if positive screen or no prior lead test	**100%**
Lead level flow sheet	**65%**
Surveillance	
Reporting elevated lead levels to MCO, LPHA, PCP	**100%**
Mandatory lab reports received	**90%**
Assessment and Diagnosis	
Apply criteria for case management services, decide who will enter case management, and termination criteria	**98%**
Physical symptoms assessment completed	**92%**
Developmental assessment completed	**76%**
Nutrition assessment completed	**68%**
Home inspection/Environmental assessment completed	**79%**
Lead source identified	**60%**
Case Management	
Plan and implement services, written treatment plan	**64%**
Home visits/Family education	**96%**
Advocacy for family and parent support	**26%**
Set up lab testing schedule and location	**84%**

Referrals	
Nutritionist/WIC	**43%**
Early Head Start/Preschool	**37%**
First Steps-speech therapy, physical therapy	**53%**
Identify other family needs for health services, financial assistance, etc.	**36%**
Test other sibs	**56%**
Environmental Interventions	
Additional home inspections or re-inspect if residence change	**89%**
Short term hazard control: testing, identify safe and unsafe areas, increase cleaning, implement precautions	**80%**
Long term hazard control: Landlord remediation	**65%**
Medical Interventions	
EPSDT 2003	**78%**
Chelation therapy	**100%**
Family Involvement	
Phone calls/letters for missed appointments and reminders	**98%**
Parent compliance with lead recommendations	**60%**
Reported to DFS	**100%**
Evaluation	
Lead levels declining	**86%**
Monitor plan, identify barriers and revise plan as needed	**84%**
Communicate CM changes or termination to MCO and PCP	**88%**

Source: Lead Case Management Record Review. BHC, Inc., 2004

Note: Calculation of percent met did not include items that were not applicable for the particular case.

Conclusions

Based on medical record documentation, the rates of verbal lead screening for children under six years of age (48%) and the rates of BLL testing for children at 12 and 24 months of age (51.5%, and 38.7%, respectively) continued to improve for children enrolled in the MC+ Managed Care Program. The rate of BLL testing among MC+ Managed Care Members between six months and six years of age who had

been seen by a physician was two to three times the rate for the general population of children in the same age range in the MC+ Managed Care Regions. The LRA was administered 73.9% of the time. Examination of lead case management records and medical records on a subsample of cases found that 15.7% of MC+ Managed Care Members would not otherwise have been identified as having lead poisoning based on the documentation in the medical record, suggesting that the process of sharing information on the BLLs of children enrolled in the MC+ Managed Care Program with MCOs resulted in identifying children in need of case management. Case management records contained a greater number of repeat BLLs than did medical records, indicating better tracking and management of care. The medical records of children in lead case management also contained documentation of case management and care coordination by up to four entities (the physician, local public health agencies, and other, unspecified sources). However, MC+ Managed Care Members receiving case management for lead poisoning did not always have documentation in their medical record of elevated blood lead levels or of MCO case management for lead poisoning.

Although rates of verbal lead screening and BLL were improved, the results of the *Childhood Lead Poisoning Focused Study* identified some areas for improvement. MC+ Managed Care Members who were 24 months of age were least likely to be tested and most likely to have an EBL. The most frequent risk factor identified on the verbal lead screen was that the child had never been tested. Others included the child living in a house built before 1950, having access to chipped paint, and eating non-food substances. Twenty-four months is also the age at which children are more likely to eat non-food substances, such as chipped paint. All of these factors combined indicate the need to view 24-months of age as a critical time for intervening with a high risk population for lead poisoning.

Recommendations

1. The rate of follow-up of positive verbal screens with a capillary sample or blood lead level test should be targeted for improvement. There are a number of reasons for the low rate found in the present study (29 of 273 cases; 11%), including documentation in the medical record, the reported use of maternal identification numbers at laboratories, and a lag in the amount of time between the lab test and the time the information is provided to the MCOs. The finding that 15.6% of cases with elevated blood lead levels were not documented in the medical record also indicates a need for better information sharing and/or documentation with primary care providers. A non-clinical performance improvement project aimed at identifying and targeting the sources of documentation and flow of information regarding blood lead testing is recommended.

2. There are a number of State-mandated forms that are required to be completed by providers at well-child (e.g., HCY, LRA) and prenatal care visits (Pregnancy Risk Assessment form). The State and MCOs have invested substantial resources into developing, refining, and monitoring the use of these forms. While the intent is to provide documentation of care of MC+ Managed Care Members, there are consistently low rates of use of these forms. One possible reason is that the comprehensiveness of the forms is considered too complex and burdensome to providers, especially when they must complete one or more of them at one visit. The possibility of developing brief and simple checklists in which the patients or caregivers complete at least a portion of the form at each visit, with review and follow-up items completed by the provider or staff (e.g., physicians assistant or nurse practitioner) should be considered. A clinical performance improvement project could test the efficacy of using such checklists in a large provider practice by examining the rates of blood lead screening and testing prior to and following implementation.
3. The administration of verbal lead screening items can be incorporated into the baseline health assessment, new MC+ Managed Care Member welcome calls, and provider intake or check-in paperwork at the time of a visit. All eight, or a subset of the eight items could be administered to caregivers of children less than six years of age to identify children in need of testing.
4. Blood lead level testing for children 24 months of age should be targeted for improvement given the higher rates of EBLs and greater risk factors in this age group.
5. MCOs should continue to educate providers and MC+ Managed Care Members about the higher rates of lead poisoning and the increasing number of risk factors in the MC+ Managed Care Member population.
6. Lead case management should focus on documenting the source of lead exposure, whether siblings have been exposed, and addressing family psychosocial needs especially during abatement. Communication with the PCP and LPHAs in coordinating care should also be targeted for improvement.

SECTION 5. PROVIDER NETWORK ACCESS FOCUSED STUDY

A vital element of providing services to MC+ Managed Care Members is an adequate and accessible network of health care providers. One area of concern that effects network adequacy and access is the ability of the MCOs to contract with health care providers to serve their membership. There have been reports that MCO provider directories do not accurately reflect the available pool of providers.

Objectives

Two questions that were considered in evaluating the accessibility of the provider network were:

1. Are the numbers of providers adequate to serve all of the needs of MC+ Managed Care Members?
2. Are providers accessible to MC+ Managed Care Members?

Technical Methods of Data Collection

The provider network filings of MCOs and analyses of compliance were obtained from the Missouri Department of Insurance (MDI) to obtain a list of providers for each MCO. In February 2003, MCOs were requested to submit encounter claims data for all providers in three specialties. Claims data from MCOs were obtained because the State encounter claim files identify the MCO as the provider, while the providers of interest in this study were the individuals treating MCO MC+ Managed Care Members. The three specialties selected for inclusion in this study were: 1) pediatricians; 2) obstetricians/ gynecologists; and 3) mental health providers. They were chosen because they serve a large proportion of the MC+ Managed Care Member population.

The analysis plan involved matching the provider network filings of MCOs with the claims submitted by providers to identify the number and proportion of providers submitting claims for services delivered to MC+ Managed Care Members as an indicator of access. As analyses proceeded, it was determined that conclusions based on this analysis would likely underestimate the accessibility of the provider networks and would therefore not accurately represent the MCO provider networks. A number of factors contributed to the difficulty in matching the provider network filings with the MCO claims files. First, several MCOs had unique internal identifiers of providers that did not correspond with the network adequacy file from the MDI. Second, the network adequacy file represented a static list of providers when in actuality, provider networks change frequently. This would result in providers not listed on the MDI file that submitted claims; and providers listed on the MDI file that did not submit claims because

they may have dropped from the panel early in the calendar year (after the MDI filing). Third, there was no reliable method of matching the MDI and the claims data from MCOs. Attempts were made to match the files by first and last name, but in many cases, the data in these fields were transposed such that the last name of the provider was in the first name field in one database and the last name field in the other database, preventing a match from occurring when one may have actually existed. Several attempts were made to manually review databases and supplement this data with updated provider network directories. However, the resources required to conduct this analysis for three specialties across seven MCOs was considered prohibitive, without a corresponding yield of accurate data. The provider network directories, like the MDI filings are also static databases, and the MCO claim files identified providers differently when they operated in more than one location. The findings present other analyses conducted to examine indicators of access to care for MC+ Managed Care Members.

Findings

One indicator of network adequacy is the number of physicians per MC+ Managed Care Member who are available to serve as the primary care provider (PCP). A PCP is defined as a health care professional designated by the MCO to supervise, coordinate and provide care. PCPs represent the specialties of general medicine, family medicine, internal medicine, general pediatrics, and obstetrics/gynecology. The MDI network adequacy filing and approval process examines the distance and number of providers and facilities for serving the MC+ Managed Care Member population in each MC+ Managed Care Region. Providers are required to notify MCOs whether panels are closed to MC+ Managed Care Members, and this information is transferred to the MDI annually. The provider to member ratio provides a general guideline for determining network adequacy and accessibility. The Center for Health Care Strategies, Inc. has determined that a ratio of 1.0 to 2.5 PCPs per 1,000 MC+ Managed Care Members is the accepted standard (Center for Health Care Strategies, Inc., 2002). Table 25 shows that the rate of PCPs per MC+ Managed Care Member for the MC+ Managed Care Program exceeds the recommended rate. This is likely in part because MCOs are required to meet stringent standards for the number of physicians within a particular distance of all potentially eligible MC+ Managed Care Members in the MC+ Managed Care Region, rather than for the number of MC+ Managed Care Members enrolled in the particular MCO.

Table 25. PCPs per 1,000 MC+ Managed Care Members

MCO	Number MC+ Managed Care Members	Number of PCPs in 2003	PCPs per 1,000 MC+ Managed Care Members
Community Care Plus	46,485	717	15.42
HealthCare USA	189,321	1,794	9.48
Mercy Health Plan	41,351	1005	24.30
Missouri Care	33,246	676	20.33
Family Health Partners	49,254	394	8.00
FirstGuard	42,710	546	12.78
Blue Advantage Plus	35,257	708	20.08

Source: Missouri Department of Insurance, 2003

Notes: PCP includes pediatricians, family and general practitioners, and obstetricians; PCP = primary care provider

Table 26 shows the net loss or net gain in the number of PCPs, medical specialties, and behavioral health providers for each MCO. All MCOs and their BHOs have succeeded in improving their network of behavioral health providers, improving by 33% (HealthCare USA, Eastern MC+ Managed Care Region) to 526% (Community Care Plus). One strategy used by Magellan and Community Care Plus in enrolling more providers was to pursue enrollment of larger group practices. The rates of gain and loss for PCPs and medical specialists ranged from 29% losses to 89% gains in providers.

Table 26. Provider Network Net Loss/Gain

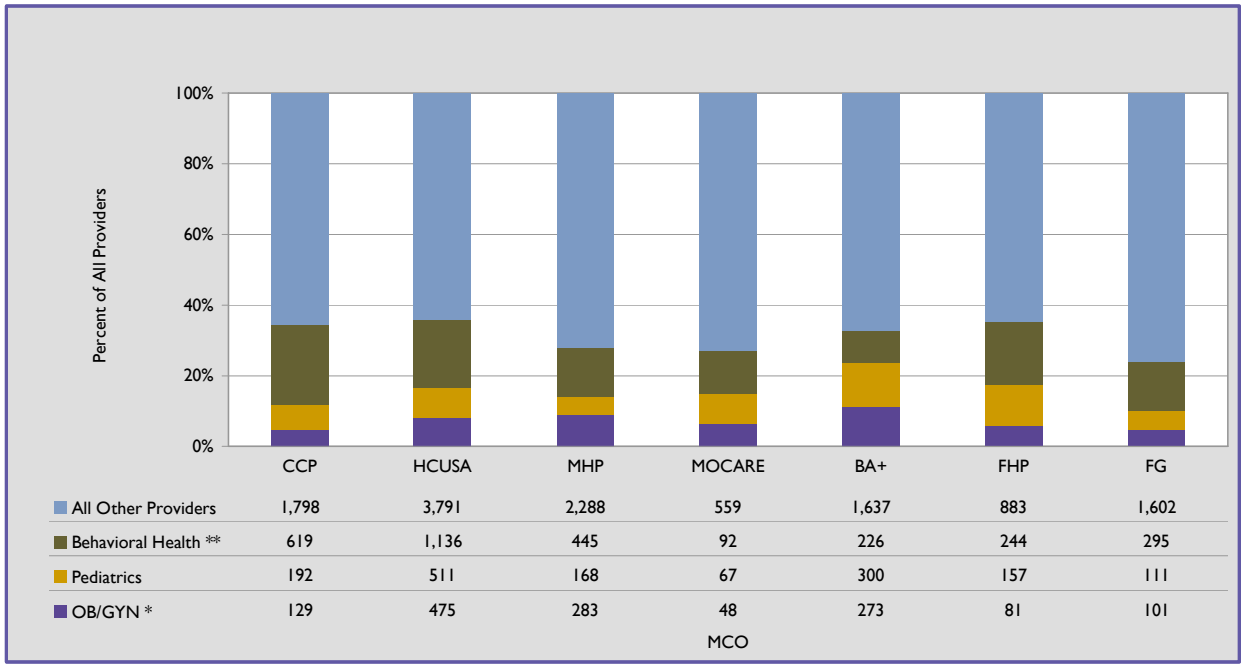
MCO	PCPs			Medical Specialties			Behavioral Health		
	2002	2003	% Change	2002	2003	% Change	2002	2003	% Change
Community Care Plus	659	717	9%	1,334	721	-46%	166	1,039	526%
HealthCare USA	2,248	1,794	-20%	2,363	2,070	-12%	1,137	1,507	33%
Mercy Health Plan	868	1,005	16%	1,504	1,572	5%	445	600	35%
Missouri Care	358	676	89%	201	235	17%	92	321	249%
Family Health Partners	533	394	-26%	430	384	-11%	244	376	54%
FirstGuard	471	546	16%	513	790	54%	295	434	47%
Blue Advantage Plus	1,004	708	-29%	1,169	871	-25%	226	417	85%
Total	1,004	940	-6%	943	1,174	24%	539	810	50%

Source: Missouri Department of Insurance, January 1, 2003

Notes: Behavioral health includes providers listed as "Psychiatrist, Adult/General"; "Psychiatrist. Child/Adolescent"; and "Psychologists/Other Therapists"; PCP = primary care provider

The number of providers available to MC+ Managed Care Members was examined for three specialty provider types: OB/GYN, pediatrics, and mental health. Figure 13 illustrates the proportion of providers that are comprised of three specialties that were of interest in the original analysis plan: behavioral health (psychiatrists, psychologists and other therapists); pediatricians, and obstetricians/gynecologists. The medical specialists and other PCPs comprise a larger proportion of the provider network than these three specialties.

Figure 13. OB/GYN, Pediatric, and Behavioral Health Providers



Source: Missouri Department of Insurance, January 1, 2003

Notes: *Behavioral health includes providers listed as "Psychiatrist, Adult/General"; "Psychiatrist. Child/Adolescent"; and "Psychologists/Other Therapists"
**OB/GYN includes providers listed as "Gynecology", "Obstetrics" and "OB/GYN"

The rate of PCPs per 1,000 MC+ Managed Care Members was higher than benchmark rates, but the ratio of the three specialties relative to the remaining providers is less than 40%. Additional analysis of the MDI network filings examined the number of unique providers (who may practice at multiple locations and be counted as two providers in the network adequacy analysis or provider directories) and the number of practices that were reported to be closed to additional MC+ Managed Care Members.

Tables 27 through 29 show the total number of listings for each of the three specialties and the proportion of practices that were closed to additional MC+ Managed Care Members. The data show that a number of providers operate at two locations.

Table 27. Number of Unique OB/GYN Providers and Closed Practices

MCO	Total OB GYN	Unique OB GYN	Closed OB GYN	% Closed
Community Care Plus	129	98	1	1%
HealthCare USA	475	301	91	19%
Mercy Health Plan	283	134	0	1%
Missouri Care	48	48	0	6%
Family Health Partners	81	80	0	0%
FirstGuard	101	80	0	0%
Blue Advantage Plus	273	125	8	3%

Source: Missouri Department of Insurance, January 1, 2003

Table 28. Number of Unique Pediatric Providers and Closed Practices

MCO	Total Peds	Unique Peds	Closed Peds	% Closed
Community Care Plus	192	138	15	32%
HealthCare USA	511	404	164	8%
Mercy Health Plan	168	121	14	3%
Missouri Care	67	66	15	7%
Family Health Partners	157	156	5	22%
FirstGuard	111	98	8	8%
Blue Advantage Plus	300	205	25	8%

Source: Missouri Department of Insurance, January 1, 2003

Table 29. Number of Unique Mental Health Providers and Closed Practices

MCO	Total MH	Unique MH	Closed MH	% Closed
Community Care Plus	428	413	0	0%
HealthCare USA	1136	1002	0	0%
Mercy Health Plan	445	335	5	0.1%
Missouri Care	92	84	1	0%
Family Health Partners	244	244	2	1%
FirstGuard	295	234	0	1%
Blue Advantage Plus	226	89	0	0%

Source: Missouri Department of Insurance, January 1, 2003
Psychiatrists, psychologists, counselors, and therapists comprise 9 to 19% of the MCO provider networks.

As a whole, pediatric practices were more likely to be closed than OB/GYN and mental health provider practices. The highest rate of closed practices was found for HealthCare USA (19%) for OB/GYNs. Since this data are self-reported by MCOs, and represents a point-in-time state of network adequacy, it

is difficult to make conclusions based on this information. It is not possible to determine whether or not providers with closed practices are closed at one or more of their locations.

The data recorded for closed practices are self-reported by the MCOs to the Missouri Department of Insurance each year and reflect one point in time when the report was filed. Pediatric practices are more likely to be closed to new clients than obstetric and mental health practices. While providers are required to notify the MCO six weeks in advance by letter when the practice is closed, the MCOs reported that this does not always occur. In addition, a provider may stop enrolling new MC+ Managed Care Members for short periods of time and then resume. Though MC+ Managed Care Member grievance data from all of the plans does not show this to be a common reason for a complaint, the MCOs must attend closely to this "moving target" to portray accurately open-for-enrollment practices. Some MCOs have online provider directories that can be updated frequently to address this issue.

Conclusions

MCOs continue to experience fluctuation in their network provider panels, making this an area for continual monitoring and improvement. All MCOs have considerably increased their panels of behavioral health providers and should experience improved access to and penetration for behavioral health services.

The current method of monitoring provider network adequacy examines the number and distance of primary care providers, medical specialists, facilities, behavioral health providers, and ancillary service providers. This analysis is conducted for each MCO by county, and no longer includes dental providers due to a change in State regulation. Several challenges to monitoring provider network adequacy include provider turnover and multiple provider locations that may all be closed to additional MC+ Managed Care Members. MCOs have conducted provider access studies by assessing after hours availability and next appointment availability. Additional indices of provider network adequacy will need to be monitored quarterly and annually to ensure access to care and availability of providers for MC+ Managed Care Members.

Recommendations

1. Access to providers should continue to be monitored at least annually by the State and MCOs through the submissions to the MDI, with reporting to the MDI of major network changes. Changes should be reviewed regularly by the DMS QI and Contract Compliance staff as well.
2. MCOs should continue to monitor after hours, emergency, and next appointment availability for providers. A statewide non-clinical performance improvement project could focus on the availability of specific types of providers.
3. The State and MCOs should not rely solely on the annual network adequacy rates for assuring network adequacy or access to healthcare services. Multiple indices and frequent evaluation of provider access to MC+ Managed Care Members should be monitored on at least a quarterly basis. This is especially important for some of the specialty providers such as behavioral health and dental providers (who are no longer included in the MDI annual provider network analyses). Indicators that can be examined on a quarterly basis for MCOs as well as their dental and behavioral health vendors include: 1) Net gain/loss of providers, by specialty; 2) Proportion of closed panels; and 3) Provider:Member ratios. These are routinely tracked by MCOs as internal quality assurance mechanisms to facilitate provider credentialing and compliance monitoring and can be applied to the monitoring of network access.
4. Other indicators that can be examined annually (perhaps as an outcome of a statewide non-clinical performance improvement project) include HEDIS indices of access to care and Consumer Assessment of Health Plans Survey (CAHPS) composite and item scores. Although these indicators are provided and examined in separate reports of their respective indicator systems, they should be compiled and used specifically to evaluate the need for additional providers. National and commercial benchmarks should be used when available. Indicators of access to routine care (well visits, annual dental visits), the ability to access care when it is needed, and the ability to access follow-up care (after mental health hospitalization) are some examples of indicators that may reveal provider network issues.
5. It is recommended that a task force of representatives from MCOs be convened to develop and obtain consensus on quarterly indicators of access, availability, and number of providers accepting MC+ Managed Care Members. The data can be compiled and reviewed annually and quarterly.

SECTION 6: ENCOUNTER CLAIMS DATA VALIDATION

An encounter is defined as the unit of service provided to a member by the MCO (Fox, 2002). Encounter data provides the same type of information found on a claim form. It does not substitute for medical record documentation, but should be consistent with and supported by medical record documentation (e.g., date of procedure, type of procedure). The MCOs contract with the State details the requirements for an acceptable submission of an encounter. The State's requirements for encounter data submitted by the MCOs include the type of encounter and required data fields.

Objectives

Encounter data is a useful source of information for the State and the MCOs to assess and improve quality, monitor program integrity, and determine capitation rates (Fox, 2000). Three issues are identified in the CMS *Validating Encounter Data* protocol:

1. Does the MCO have the capability to generate accurate and complete encounter data? This is being assessed through the state's implementation of the Information Systems Capability Assessment (ISCA) and the encounter validation methods to be implemented for the CY2004 review. Processes to enhance the quality of encounter data were addressed by an *Encounter Data Improvement Project* begun in July, 2003. The project was led by the Quality Services and Rate Setting Staff of DMS and MCO representatives. The group sought to evaluate submitted data, compare the data to that maintained by the MCO, determine if the transmission of accurate and reliable data was occurring between the MCO and DMS, and identify opportunities for improvement. The MCOs submitted portions of the Information Systems Capability Assessments (ISCA) throughout 2003.
2. What is the quality of the data that are accepted by the State encounter claims system? Is it present in the right format? Is it accurate? Are data fields complete?
3. Once the State encounter database is deemed acceptable, can it be validated against the provider's medical records of the encounter?

The objectives of this study were to evaluate the latter two questions. Two strategies were used to assess the accuracy and completeness of the State encounter claims data: 1) Macro-validation evaluates the entire State encounter claims database to assess the quality, completeness, and quality of the encounter claims data; and 2) Micro-validation compares individual encounters from the State encounter claims database to medical records through in-depth analyses of encounter records (Center for Health Program Development and Management, 2003).

Technical Methods of Data Collection

Macrovalidation

To assess the accuracy and completeness of the State encounter claims database, the entire State encounter claims database was used for analysis. Completeness refers to the presence or absence of data in a field, and accuracy refers to the data type (numeric, alpha, or string) and size (length of data in the field). Appendix E contains the definitions for the validation of encounter claims fields for inpatient, outpatient (including medical, dental, home health, and outpatient hospital claim types), and pharmacy encounter claim file layouts.

Accuracy = refers to the data type (numeric, alpha, or string) and size (length of data in the field)

Completeness = refers to the presence or absence of data in a field

The inpatient, outpatient (including medical, dental, home health, and outpatient hospital claim types), and pharmacy encounter claim file layouts from January 1, 2003 through December 31, 2003 were examined for accuracy and completeness of information. The following data fields were determined to be the most critical for accuracy and completeness: recipient identification number, last name, first name, date of birth, MCO identification number, primary diagnosis using the ICD-9 code (International Classification of Diseases, Ninth Revision, Clinical Modification), first and last dates of service, units of service, and Current Procedural Terminology (CPT) code. For the Pharmacy claims layout, the National Drug Code and the prescribing provider number were examined rather than ICD-9 or CPT codes. The inpatient, outpatient, and pharmacy file layouts were sorted by claim type, with all claim types "I" (inpatient) and "D" (drug) placed into separate files for analysis of inpatient and pharmacy encounter claims. The outpatient encounter claim types (medical, dental, home health, and outpatient hospital) were examined together. Each field was examined for the presence or absence of data, the correct type of information (claim types D = drug; H = home health; L = dental; M = medical; I = inpatient; , O = outpatient hospital; V = void,), and the correct size of information. One limitation of this analysis is that the encounter claim completeness and accuracy analysis was based on **accepted** encounter claims and did not account for all claims that were submitted and rejected through system edits. MCOs report a rate of accepted claims from 42.8% to 98% (see Table 30). Conclusions regarding the extent to which the encounter claims database reflects the accuracy and completeness of rejected claims cannot be drawn. Data are presented in the aggregate and are available at the regional level.

Encounter claims rejection rates ranged from 12% to 29% in other states (New York, Pennsylvania, Texas). New York achieved an encounter claims acceptance rate of 97% by 2003; and Pennsylvania achieved an acceptance rate of 88%. Table 30 summarizes the total encounter claims acceptance rates of MCOs for 2003, as reported on the pre-site visit protocols.

Table 30. Rate of Accepted Encounter Claims

MCO	Rate of claims accepted
Community Care Plus	96%
HealthCare USA	42.8 - 96%
Mercy Health Plan	75 - 80%
Missouri Care	94%
Family Health Partners	94%
FirstGuard	97%
Blue Advantage Plus	98%

Source: Encounter claims database, MMIS, 2003

Microvalidation

To assess the validity of the encounter claims database against the medical record, a convenience sample of the medical records submitted for the *Childhood Lead Poisoning Focused Study* was used to validate the encounter claims database against documentation in the medical record for BLL testing. This sample is representative of the population of six-month to six-year old MC+ Managed Care Members in each MC+ Managed Care Region. Only those cases with medical records submitted by all providers were included in this analysis (N = 1,300). The sample was further defined for the BLL testing encounter claim codes for those cases in which the child was 12 or 24 months of age during CY2003 (N = 298 for 12-month-olds; and N = 268 for 24-month-olds). Given the nature of the convenience sample and the focus on BLL testing encounter claims for 12- and 24-month olds, data for the microvalidation are presented in the aggregate statewide. The following definitions were used to describe the validity of the encounter claims data:

Accurate (Match)= An encounter that occurred, as documented in the medical record, and that is found in the electronic encounter claim file

Error of Omission (Missing) = An encounter that occurred, as documented in the medical record, but that is not found in the electronic encounter claim file

Error of Commission (Surplus) = An encounter represented in the electronic encounter claim file that is not documented in the medical record

Findings

Macrovalidation

Table 31 shows the number of claims **accepted** by the State Medicaid Managed Information System (MMIS) for encounter claims for each file layout (inpatient, outpatient, pharmacy). Table 32 presents a summary of the accuracy of data fields in the inpatient database for a total of 421,140 encounter claims during CY2003. Tables 32 through 34 present aggregate data across MCOs regarding the information present, the accuracy of the information, and the size of information. For recipient identification number, there was information present in all fields, it was numeric in nature, and it contained eight digits.

Table 31. Number of Encounter Claims by Type

MCO and Region	Inpatient	Outpatient	Pharmacy	Total
Community Care Plus	7,108	405,868	135,574	548,550
HealthCare USA-E	188,928	2,236,193	893,695	3,318,816
Mercy Health Plan	51,786	363,401	219,698	634,885
Eastern Region	**247,822**	**3,005,462**	**1,248,967**	**4,502,251**
Missouri Care	40,048	626,854	226,177	893,079
HealthCare USA-C	33,515	569,647	224,693	827,855
Central Region	**73,563**	**1,196,501**	**450,870**	**1,720,934**
Family Health Partners	41,019	751,545	284,676	1,077,240
FirstGuard	45,470	620,123	314,288	979,881
Blue Advantage Plus	4,969	480,813	193,031	678,813
HealthCare USA-W	8,297	94,407	27,688	130,392
Western Region	**99,755**	**1,946,888**	**819,683**	**2,866,326**
Total	**421,140**	**6,148,851**	**2,519,520**	**9,089,511**

Source: Encounter claims database, MMIS, 2003

Note: The outpatient file layout includes medical, dental, home health, and outpatient hospital claim types.

For claim type, all fields were complete, with 1 alpha string character, and by nature of the sorting procedure, contained only codes of "I" (inpatient). The last name and first name fields all had information of alpha string nature, up to 14 characters. Information on date of birth was present in all fields, in alpha string format from eight to 10 characters (MM-DD-YY; or MM-DD-YYYY). Provider number (MCO number) was present in all fields with numeric information of nine digits. The first diagnosis field was 100% complete, with all fields having appropriate information and length (three to five digits; or "V" + three to five digits; or three to five digits; or "E" + three to five digits; or "EPS"). The second through fifth diagnosis fields were examined for duplication with first diagnosis field. There was no duplication of information in any of these fields. The correct type of information was present in most fields (86.7% to 88.9%). The first date of service field was complete in all records, with an alpha string format of eight to 10 characters (similar to the date of service). The last date of service was also

100% complete, with accurate information and accurate length of information. The unit of service field was 100% complete with the correct type of information (numeric) and the correct size of information (five digits).

Table 32. Inpatient Encounter Data Completeness and Accuracy

Field Name	Information Present		Correct Type of Information		Correct Size of Information	
	#	%	#	%	#	%
Recipient Identification Number	421,140	100.00%	421,140	100.00%	421,140	100.00%
Claim Type	421,140	100.00%	421,140	100.00%	421,140	100.00%
Last Name	421,140	100.00%	421,140	100.00%	421,140	100.00%
First Name	421,140	100.00%	421,140	100.00%	421,140	100.00%
Date of Birth	421,140	100.00%	421,140	100.00%	421,140	100.00%
Provider Number	421,140	100.00%	421,140	100.00%	421,140	100.00%
Diagnosis 1	421,140	100.00%	421,140	100.00%	421,140	100.00%
Diagnosis 1 ≠ Diagnosis 2	0	0.00%	416,129	88.88%	0	0.00%
Diagnosis 1 ≠ Diagnosis 3	0	0.00%	405,823	86.67%	0	0.00%
Diagnosis 1 ≠ Diagnosis 4	0	0.00%	416,171	88.89%	0	0.00%
Diagnosis 1 ≠ Diagnosis 5	0	0.00%	416,162	88.89%	0	0.00%
First Date of Service	421,140	100.00%	421,140	100.00%	421,140	100.00%
Last Date of Service	421,140	100.00%	421,140	100.00%	421,140	100.00%
Units of Service	421,140	100.00%	421,140	100.00%	421,140	100.00%
Total	421,140	100.00%	421,140	100.00%	421,140	100.00%

Source: Encounter claims database, MMIS, 2003

Table 33 shows the findings of the evaluation of completeness and accuracy of the outpatient encounter claims database fields (including medical, dental, home health, and hospital outpatient claim types). These same elements in addition to the procedure code were examined for a total of 6,148,851 encounter claims for CY2003. The recipient identification number was present, with a numeric format of eight digits in all fields. The outpatient encounter claim type (medical, dental, home health, or hospital outpatient) was present in nearly all fields, with the correct type of information in 92.40% of fields and the correct size of information in all fields (one alpha string). The last name and first name were present in nearly all fields, and nearly all fields contained the correct size of information (14 characters or less). The date of birth was present in most fields, with the correct type and size of information for nearly all fields. The provider number fields were 100.00% complete, with 100.00% accurate information and 100.00% of the correct size of information (nine digits). The first diagnosis field was accurate nearly 100.00% of the time, as was the type of information and the length of the

information contained in the fields. The second through fifth diagnosis fields did not duplicate the first diagnosis field in any of the cases, and were accurate 93.46%-100.00% of the time. The first and second dates of service were complete in nearly all cases, with the correct type of information and correct length of information in the fields. Units of service were nearly 100.00% accurate with the correct type of information and correct length (5 digits). A procedure code was present 98.56% of encounter claims, with 99.18% containing the correct type of information and 99.18% containing the correct length of information.

Table 33. Outpatient Encounter Data Completeness and Accuracy

	Information Present		Correct Type of Information		Correct Size of Information	
Field Name	**#**	**%**	**#**	**%**	**#**	**%**
Recipient Identification Number	6,148,840	100.00%	6,148,840	100.00%	6,148,840	100.00%
Claim Type	6,148,839	100.00%	5,680,835	92.39%	6,148,839	100.00%
Last Name	6,148,834	100.00%	6,148,821	100.00%	6,148,825	100.00%
First Name	6,148,834	100.00%	6,148,804	100.00%	6,148,809	100.00%
Date of Birth	6,148,840	100.00%	6,148,840	100.00%	6,148,840	100.00%
Provider Number	6,148,851	100.00%	6,148,851	100.00%	6,148,851	100.00%
Diagnosis 1	6,148,823	100.00%	6,148,823	100.00%	6,148,823	100.00%
Diagnosis 1 ≠ Diagnosis 2	0	0.00%	5,746,633	93.46%	0	0.00%
Diagnosis 1 ≠ Diagnosis 3	0	0.00%	5,806,968	94.44%	0	0.00%
Diagnosis 1 ≠ Diagnosis 4	0	0.00%	5,835,241	94.90%	0	0.00%
Diagnosis 1 ≠ Diagnosis 5	0	0.00%	6,148,796	100.00%	0	0.00%
First Date of Service	6,148,840	100.00%	6,148,840	100.00%	6,148,840	100.00%
Last Date of Service	6,148,840	100.00%	6,148,840	100.00%	6,148,840	100.00%
Units of Service	6,148,840	100.00%	6,148,841	100.00%	6,148,840	100.00%
Procedure/Revenue code	6,060,306	98.56%	6,098,151	99.18%	6,098,151	99.18%
Total	6,148,851	100.00%	6,148,840	100.0%	6,148,840	100.0%

Source: Encounter claims database, MMIS, 2003

Note: The outpatient file layout includes medical, dental, home health, and outpatient hospital claim types.

Table 34 presents data fields for the pharmacy encounter claims data (2,519,520) encounter claims. For the pharmacy encounter claims database, the provider number, recipient identification number, first date of service, National Drug Code (NDC) code, and prescribing provider number were examined for completeness and accuracy. All fields were 100% accurate, except for the prescribing provider number field. Information was present in 64.43% of these fields, with 64.43% string data and 64.43% eight-character string data.

Table 34. Pharmacy Encounter Data Completeness and Accuracy

Field Name	Information Present		Correct Type of Information		Correct Size of Information	
	#	%	#	%	#	%
Provider Number	2,519,520	100.00%	2,519,520	100.00%	2,519,520	100.00%
Recipient Identification Number	2,519,520	100.00%	2,519,520	100.00%	2,519,520	100.00%
First Date of Service	2,519,520	100.00%	2,519,520	100.00%	2,519,520	100.00%
Drug NDC Code	2,519,520	100.00%	2,519,520	100.00%	2,519,520	100.00%
Prescribing Provider Number	1,623,280	64.43%	1,623,278	64.43%	1,623,278	64.43%
Total	2,519,520	100.00%	2,519,520	100.00%	2,519,520	100.00%

Source: Encounter claims database, MMIS, 2003

Note: NDC = National Drug Code

COMMUNITY CARE PLUS

Encounter claims accepted from Community Care Plus for all outpatient claim types (405,868) were 100.00% complete for all fields examined. All fields examined contained the correct type of information (100.00% accuracy), with the exception of the procedure code field (99.07% accuracy). The size of the information was correct in all fields (100.00% accuracy), with the exception of the procedure code field (99.07%).

Inpatient encounter claims accepted by Community Care Plus for inpatient services (7,108) were accurate, of the correct type, and of the correct size for all fields (100.00%).

Pharmacy encounter claims accepted by Community Care Plus (135,574) for all fields were complete, of the correct type, and of the correct size for all fields (100.00%).

The size and format of procedure code fields for outpatient encounter claim types should be further evaluated to improve the accuracy and completeness of these fields.

HEALTHCARE USA

Encounter claims accepted from HealthCare USA for all encounter claim types (2,236,193 in the Eastern MC+ Managed Care Region, 569,647 in the Central MC+ Managed Care Region, and 94,407 in the Western MC+ Managed Care Region) were 100.00% or near 100% (with rounding) present in all fields examined across MC+ Managed Care Regions, with the exception of the procedure code in the Eastern MC+ Managed Care Region (98.54% complete). For the correct type of information, all fields examined were correct in all MC+ Managed Care Regions, with the exception of outpatient encounter claim type (92.86% complete in the Eastern MC+ Managed Care Region, 93.92% complete in the Central MC+ Managed Care Region and 93.37% complete in the Western MC+ Managed Care Region); and the procedure code (98.68% correct) in the Eastern MC+ Managed Care Region, 98.70% in the Central MC+ Managed Care Region, and 98.60% in the Western MC+ Managed Care Region).

Inpatient encounter claims for the Eastern (188,928), Central (32,515), Western (8,297) MC+ Managed Care Regions were correct and contained the correct the size of information in all fields (100.00%).

Pharmacy Encounter claims submitted by HealthCare USA (893,695 in the Eastern MC+ Managed Care Region, 224,693 in the Central MC+ Managed Care Region, 27,688 in the Western MC+ Managed Care Region) were 100.00% complete, with the correct type of information and correct size of information in 100.00% of the fields within each MC+ Managed Care Region, with the exception of the prescribing provider number, which was nearly 100% complete and accurate in the Central and Western MC+ Managed Care Regions (with rounding).

MERCY HEALTH PLAN

Of the 363,401 all outpatient encounter claim types accepted from Mercy Health Plan, 100.00% of all fields examined contained information, and the information was the correct size. The correct type of information was entered 100.00% of the time for all fields, with the exception of last name and first name, which were near 100% (with rounding); and outpatient encounter claim type, which fell at 91.61% accuracy. The correct size of information was present in all fields (100.00%); with the exception of procedure code (98.92%).

For inpatient encounter claims accepted by Mercy Health Plan (51,786), all fields contained information, the correct type of information, and the correct size of information. There was some duplication in the third and first diagnosis fields (80.00% accuracy).

For pharmacy claims (219,698) accepted from Mercy Health Plan, the provider number, recipient ID number, first date of service, and drug NDC code were all present, with the correct information and correct size of information (100.00%). However, the prescribing provider number was not present.

MISSOURI CARE

All outpatient encounter claim types submitted from Missouri Care (626,854) contained information in 100.00% of all fields examined; and contained the correct size of information in all fields examined (100.00%). The correct type of information was present in all fields examined, except outpatient encounter claim type (89.69% accuracy) and procedure code (99.84% accuracy).

All inpatient (40,048) and pharmacy (226,177) claims were 100.00% complete, correct and accurate in size (100.00%).

FAMILY HEALTH PARTNERS

All of the outpatient encounter claim types submitted (751,545) contained information in 100.00% of all fields, or nearly all fields (with rounding). The correct type of information was present in 100.00% of most fields. For all outpatient encounter claim types, the claim type field was accurate 95.89% of the time, and the second and third diagnosis fields contained unique information from the first diagnosis field 99.71% and 99.95% of the time, respectively. The correct size of information was present in all fields. For inpatient encounters submitted, all fields examined were 100.00% accurate, with the correct type of information and the correct size of information. One exception was some duplication among the second and first diagnosis fields (99.90% accurate).

All pharmacy encounter claims submitted by Family Health Partners and accepted by the state system (284,674) contained information which was correct and accurate in size (100.00%).

FIRSTGUARD HEALTH PLAN

The outpatient encounter claim types submitted by FirstGuard (620,123) had information present 100.00% of the time in all fields examined. The correct type of information was present in all (100.00%) or nearly all (with rounding) fields examined, with the exception of outpatient encounter claim type (90.62% accurate), and some duplication between the second and first diagnosis fields (99.66% accuracy). The correct size of information was present in all fields examined 100.00% of the time.

For inpatient encounter claims (45,470), information was present in 100.00% of the fields examined. For the correct type of information, all fields examined were 100.00% accurate with some minor duplication of the first diagnosis field in the second and fifth fields. The correct size of information was present in 100.00% of all fields examined.

The pharmacy encounter claims (314,288) had information present in all fields, were correct, and had the correct size of information in all fields (100.00%).

BLUE ADVANTAGE PLUS

The outpatient encounter claim types (480,813) submitted and accepted from Blue Advantage Plus were 100.00% complete. The correct type of information was present in most fields at 100.00%. The outpatient encounter claim type was accurate 90.09% of the time. The second, third and fourth diagnosis fields duplicated the first diagnosis field (44.97% accuracy). The correct size of information was present in all fields 100.00% of the time.

All fields examined for inpatient encounter claims (4,969) had information present 100.00% of the time, with the correct type of information (100.00%) and the correct size of information (100.00%).

Pharmacy encounter claims (193,031) were present, correct, and contained the correct size of information 100.00% or nearly 100% (99.99%) of the time.

Microvalidation

The validation of encounter claims for BLL tests was conducted separately for 12- and 24-month-old children. Only those cases for which medical record requests were received from all providers were included in the analysis. For the 12-month-old age group, there were a total of 298 cases for children who turned 12 months of age at some point during CY2003 for which there was medical record abstraction data. One hundred fifty-six cases had at least one BLL test documented in the medical record, with a total of 171 BLL tests across the 156 cases documented (see Table 35). The match with the encounter claims database was conducted in a series of steps. First, the number of Department Control Numbers (DCNs) for the two hundred ninety-eight cases that were present in the encounter claims database was examined. There were a total of 94 cases of 298 (30.5%) which were present in the encounter claims database (see Table 36). The next step involved matching a DCN and a date of service (any service) for the 298 cases. There were 116 (38.9%) records in which the DCN and dates of

service matched those in the medical record. Next, the encounter claims database was examined for the number of BLL tests for which there was an encounter claim in any of the 298 cases. Finally, the number of cases in which the DCN, the BLL test encounter claim, and the date of service matched was examined. There were 72 cases in which there was corresponding documentation in the medical record of a BLL on a specific date. Given that some cases had more than one BLL during the year, the number of BLL tests which were documented across all cases and the number of claims for blood lead tests was examined. There were a total of 79 BLL tests documented in the medical records for which there was a corresponding claim with a date of service and BLL code in the encounter claims data base. The number of omissions (number of blood lead test for which there was no corresponding encounter claim) was examined, and the number of commissions (number of encounter claims for which there was no corresponding documentation in the medical record of a BLL on a particular date) was calculated (see Table 37). There were 92 omissions 25 commissions statewide. The percent match was 39.7%. Of the cases reviewed, 52.3% showed documentation of at least one BLL test in the medical record. There was an average of 1.10 BLL tests per MC+ Managed Care Member documented in the medical record. There was an average of 1.14 encounter claims per MC+ Managed Care Member for BLL tests for the cases reviewed.

Table 35. Medical Record Cases, 12 Months of Age

MCO	N	# Cases with BLL	Total # BLL
Eastern	112	64	75
Central	72	41	41
Western	114	51	55
Missouri	298	156	171

Sources: Encounter claims database, MMIS, 2003; Medical Record Review, BHC, Inc., 2004

Table 36. Encounter Claims, 12 Months of Age

MCO	DCN Match	Total # Claims	DCN-BLL Case Match	DCN-DATE Match	DCN-BLL Count	# Case Matches	# BLL Claim Matches
Eastern	111	1,456	37	48	42	29	33
Central	72	1,321	20	31	21	17	18
Western	114	1,678	37	37	44	26	28
Missouri	297	4,455	94	116	107	72	79

Sources: Encounter claims database, MMIS, 2003; Medical Record Review, BHC, Inc., 2004

Table 37. Validation of Encounter Claims, 12 Months of Age

MCO	% Match	# Omissions	# Commissions	% at least one BLL	BLL Rate/ MC+ Managed Care Member	Rate BLL Claims/ MC+ Managed Care Member
Eastern	39.3%	42	9	57.1%	1.17	1.14
Central	40.9%	23	3	56.9%	1.00	1.05
Western	39.4%	27	16	44.7%	1.08	1.19
Missouri	39.7%	92	28	52.3%	1.10	1.14

Sources: Encounter claims database, MMIS, 2003; Medical Record Review, BHC, Inc., 2004

The 24-month BLL encounter data validation was conducted in the same manner as the 12-month BLL encounter data validation. There were 268 cases examined. One hundred four (38.8%) of the cases had 117 BLL tests (an average of 1.10 per MC+ Managed Care Member; see Table 39). Nearly all of the cases had a corresponding DCN in the encounter claims database (267 of the 268), with a total number of claims of 2,884. Seventy-nine cases had a match of DCN and BLL, and 83 cases had a match of DCN and date (see Table 40). There were 98 BLL tests for the 267 cases in the encounter claims database. Forty-five cases had a match of DCN, BLL, and date of service. There were 49 encounter claims for BLL test that also matched the DCN and date of service. There were 68 omissions and 49 commissions, with a total match rate of 29.5% between the encounters documented in the medical record and the encounter claims database (by DCN, BLL test and date of service). Of all of the 24-month-olds, 88.8% had at least one BLL test, with an average of 1.13 BLL tests per MC+ Managed Care Member. There was an average of 1.26 BLL test encounter claims per MC+ Managed Care Member in the encounter claims database.

Table 38. Medical Record Cases, 24 Months of Age

MCO	N	# Cases with BLL	Total # BLL
Eastern	96	42	51
Central	63	16	17
Western	109	46	49
Missouri	268	104	117

Source: Medical Record Review, BHC, Inc., 2004

Table 39. Encounter Claims, 24 Months of Age

MCO	DCN Match	Total # Claims	DCN-EPSDT Case Match	DCN-DATE Match	DCN-BLL Count	# Case Matches	# BLL Claim Matches
Eastern	95	807	34	31	47	19	21
Central	63	923	17	12	18	7	8
Western	109	1154	38	40	47	19	20
Missouri	267	2884	89	83	112	45	49

Sources Encounter claims database, MMIS, 2003; Medical Record Review, BHC, Inc., 2004

Table 40. Validation of Encounter Claims, 24 Months of Age

MCO	% Match	# Omissions	# Commissions	% at least one BLL	BLL Rate/ MC+ Managed Care Member	Rate BLL Claims/ MC+ Managed Care Member
Eastern	27.3%	30	26	43.8%	1.21	1.38
Central	29.6%	9	10	25.4%	1.06	1.06
Western	26.3%	29	27	42.2%	1.07	1.24
Missouri	27.2%	68	63	38.8%	1.13	1.26

Sources Encounter claims database, MMIS, 2003; Medical Record Review, BHC, Inc., 2004

Conclusions

The State has continuously worked with MCOs to improve the process of encounter claims submission. The main barrier to encounter claims submission is that payment is based on a per member per month capitated payment mechanism rather than a fee-for-service arrangement. Several MCOs have moved from subcapitating provider groups to reimbursing them on a fee-for-service basis to improve their claim submissions to the MCO and consequently, the MCOs' claim submissions to the State. As noted earlier, the rate of encounters per 1,000 MC+ Managed Care Members for all claim types has increased. This may be due to increased access, or increased submission of encounter claims. As with other states, the DMS developed a corrective action plan approved by CMS to improve their ability to use State encounter claim data to develop capitation rates.

Two levels of State encounter claims validation were conducted: macrovalidation and microvalidation. The macrovalidation of encounter claims examined the accuracy and completeness of particular fields in the State encounter claims database that consist of encounter claims accepted from the MCOs. Completeness refers to the presence or absence of data in a particular field, and accuracy refers to the data type (numeric, alpha, or string) and size (length of data in the field). One limitation of the macrovalidation analysis is that it was conducted on the State encounter claims database and did not examine the extent to which the State encounter claims database reflected the number or volume of claims actually submitted and subsequently rejected by the State encounter claims database due to system edits and MCO encounter claim errors. The microvalidation process involves the comparison of individual encounters to medical records (Center for Health Program Development and Management, 2003).

Using the macrovalidation, it was found that encounter claim data fields were complete, accurate, and in the correct format 100% of the time for most of the required fields in the inpatient, outpatient, and

pharmacy claim file layouts. The most notable exception was for the claim type field in the outpatient file layout (which includes medical, dental, outpatient hospital, and home health claim types), which was accurate 92.4% of the time statewide. Exceptions to the 100% rate of accuracy were noted within MCOs on the presence of any information about the prescribing provider number in the pharmacy encounter claims (64.4% accuracy statewide) and the duplication of the first diagnosis field in subsequent diagnosis fields in the inpatient claims database (86.7% to 88.9% accuracy statewide).

In the outpatient encounter claim file layout, all MCOs had lower than 100% rates of accuracy for the type of information in the claim type field (alpha string). The rates were calculated for HealthCare USA (92.9% accuracy in the Eastern Region; 93.9% accuracy in the Central Region; and 93.4% in the Western Region), Mercy Health Plan (91.6% accuracy), Family Heath Partners (95.9% accuracy), FirstGuard (90.6% accuracy), Blue Advantage Plus (90.1%), and Community Care Plus (91.2%).

In the pharmacy encounter claim file, the presence of the prescribing provider number was 100% for HealthCare USA (Eastern and Central Regions), Family Health Partners, and Blue Advantage Plus. The statewide rate was primarily accounted for by several MCOs that had no information in this field (Community Care Plus, FirstGuard, Mercy Health Plan, Missouri Care). HealthCare USA in the Western Region had a rate of 99.8% completion of this field.

The duplication of the first diagnosis fields in the second through fifth diagnosis fields in the inpatient and outpatient encounter claim files ranged across MCOs (88.67% to 94.9% accuracy).

Microvalidation examined whether services documented in the medical record were represented by an encounter claim present in the State encounter claim database; and whether an encounter claim submission was supported by documentation of services in the medical record. Instances in which the medical record and the State encounter claim matched were considered "matches" and were included in the "match rate". When there was a service documented in the medical record but not found in the State encounter claim database, this was considered an "omission" error (i.e., a claim omitted from the State encounter claim database) and when there was no supporting documentation in the medical record of the encounter found in the State encounter claims database, this was classified as a "commission" error. The State outpatient encounter claim file was validated against medical record documentation for encounter claims of BLL testing on children at 12 and 24 months of age. This was conducted on a convenience sample of cases randomly and proportionally selected for the *Lead Focused Study*. Both the medical record and the encounter claim files documented a similar number of cases

with BLL testing at 12- and 24-months of age; and a similar number of encounters for BLL testing in the two age groups. However, the rate of encounter claims with corresponding medical record documentation of a BLL test for a specific child on the date of the claim was low (39.7% for 12-month-olds, and 27.2% for 24-month-olds). An error analysis found that for the 12-month-olds, the number of omission errors exceeded the number of commission errors. Thus, there was a higher frequency of service provision not represented in the State encounter claims database than the frequency of State encounter claims that were not documented in the medical record. The rates of omission and commission errors were similar for the 24-month age group. These findings indicate that the State encounter claims database is not a valid or reliable indicator of BLL testing. This study examined only the BLL test claims, and cannot be used to generalize to other claim types. The match rates are likely lower for this claim than for other claims due to the nature of BLL testing. A number of LPHAs conduct BLL testing. However, they have had less experience than traditional providers in submitting encounter claims for their services. In the past two years, MCOs have been increasingly contracting with LPHAs and encouraging them to submit encounter claims for all their services. Another reason for the poor match rate may also be the use of capillary sampling as a method of BLL. This is a relatively new method used by providers who do not conduct venipuncture in their offices, and they may not be as accustomed to billing for this service.

Recommendations

1. Analysis of encounter claims data should be limited to those fields that have met threshold levels of accuracy. The claim type field (including the medical, dental, home health, and outpatient hospital claim types) in the outpatient encounter claim file layout, the prescribing provider number field in the pharmacy file layout, and the second through fifth diagnosis fields in the inpatient encounter claim file layout should not be used until further improvement is made.
2. It is recommended that the State establish thresholds for encounter claim field completeness and accuracy, investigate reasons for incompleteness and inaccuracy with the MCOs, and develop corrective action plans for improving the quality of encounter claim submissions to threshold levels.
3. The State should use the analysis of encounter claims validation as a baseline for future analyses on the rate of omissions and commissions in encounter claim submission for BLL testing.
4. In collaboration with the MCOs, the possible reasons for the low rate of encounter claim matches should be explored to improve the process of BLL testing and encounter claim submission for BLL testing by providers and LPHAs. This should also be done in collaboration with the Department of Health and Senior Services, which monitors the performance of the LPHAs.

APPENDICES

Appendix A. Technical Methods and Data Sources for Compliance Review and Site Visits

The 2003 External Quality Review relies on the examination of documents from the State and MCOs, analysis of aggregate data, face-to-face interviews, MCO site visits, and medical record reviews.

The following DMS documents were reviewed:

- MC+ Managed Care Quality Improvement (QI) Strategy, September 24, 2003
- Quality Assessment and Improvement Meeting Minutes for 2003
- Quality Assessment and Improvement Subgroup Minutes for 2003
- Provider Bulletins disseminated in 2003
- MC+ Managed Care Policy Statements, July, 2002 and new policies added in 2003

The following data aggregates were analyzed for State and MC+ Managed Care Regional trends:

- The Maternal and Child Health Indicators and Trends Report are compiled quarterly by the Department of Health and Senior Services, Community Health Information Management and Epidemiology Division (DHSS, CHIME). Aggregate data from 1995, the first year for which a full set of data were available, were available for a number of maternal/infant and child health indicators that are compiled from publicly reported vital health statistics and hospital discharge data sets. Data for CY2003 are provisional and are estimated to be 99% complete as of March 26, 2003.
- 2003 data complied by the MC+ Managed Care Health Benefits Manager, Policy Studies, Inc., included weekly enrollment data, rate of auto-assignment of MC+ Managed Care Members to a PCPs, and reasons for MC+ Managed Care Member telephone calls
- MC+ Managed Care Consumer Advocacy Project Reports (Eastern MC+ Managed Care Region) for April 1 to June 30, 2003

A standard interview guide was used to obtain an update on organizational changes, process improvements, priorities for quality improvement, and the administration of the MC+ Managed Care Program. Face-to-face interviews were conducted with state officials, DMS staff, and subcontractors during December, 2003. Discussions with members of the QA & I Advisory subgroups were led by the

Contract Manager and Medicaid Consultant to review completed projects, identify current issues of concern for MC+ Managed Care Members, and identify future directions.

On-site visits were conducted at each MCO during March, 2003. The Contract Manager, Project Director, and Medicaid Consultant conducted document reviews and site visits using a standard format and follow-up questions from last year's findings. Prior to site visits, MCOs were asked to submit a number of documents and complete a Pre-Site Visit Protocol (see Appendix A) to facilitate review of compliance with standards and operations. The protocol requested MCO-specific information regarding:

- Quality improvement plans and projects
- MC+ Managed Care Member enrollment
- Physician and ancillary providers in the network
- Subcontractors
- Information systems management and claims processing
- Case management activities
- Policies and procedures

In addition to the information requested prior to the site visit, MCOs submitted electronic files of CY2003 encounter data for obstetric, pediatric, and mental health services. These databases were analyzed for MC+ Managed Care Member utilization of services and claims activity for network providers.

During the site visit, MCOs made available the following documents:

- Board meeting minutes and documentation of Board acceptance of 2004 QA & I Plan
- 2003 Annual Reports from subcontractors
- 2003 Quality Assessment and Improvement (QA & I) committee meeting minutes
- 2003 Utilization Review and Medical Management committee meeting minutes
- 2003 Annual Reports from each committee
- 2003 Vendor complaints, number and type
- 2003 Minutes from subcontractor oversight committee meetings
- 2003 Corrective action plans for subcontractors
- 2003 Denial logs (Services denied, reasons, frequency, and disposition)
- Five (5) behavioral MCO case management records

Appendix B. Pre-Site Visit Protocol

Health Plan Name: _____

Name of Person Completing this Form: _____

Title of Person Completing this Form: _____

Date Form Submitted: _____

Instructions: Complete this form and place a hardcopy printout behind Tab 1 in the blue binder that is provided. A diskette of this protocol is enclosed for your convenience. Do not return the diskette to BHC.

MEMBER INFORMATION

Please indicate MC+ enrollment for the Year 2003, as of December 31, 2003

Program	Count	Member Months
1115		
1915b		
Total MC+ Members		

Please provide information for the following items. If lengthy explanations or supporting documentation is provided please indicate reference.

Item	Number/Rate/Explanation	Supporting Information Provided (Y/N)
Rate of auto-assignment to providers, CY2003		
Rate of contact/screening of new members within 30 days; numerator and denominator, aggregate for CY2003		
Number of member services staff positions (FTE) dedicated to the MC+ Product, December 31, 2003		
Member services staff turnover rate during CY2003		
Rate of returned member mail, numerator and denominator, CY2003		
Number of involuntary member disenrollments and reasons, CY2003		
Number of voluntary member disenrollments and reasons, CY2003		
Rate of receipt of MC+ Health History information for members (numerator and denominator)		

PROVIDER INFORMATION

1. Describe how you determine the number and type of providers needed for your provider panel.

2. What activities do you conduct to monitor provider access and availability? (please check all that apply).

   - ❑ Tracking the number of providers by specialty and county?
   - ❑ Conducting/reviewing GeoAccess surveys to ensure a certain level of coverage in all areas?
   - ❑ Tracking appointment availability?
   - ❑ Tracking inquiries and complaints regarding appointment availability?
   - ❑ Assessing the number of members with special needs by type of provider needed?

3. Describe your process to adjust the number, location, and type of providers needed.

4. How do you monitor the availability of providers to respond to the needs of their MC+ Managed Care members?

5. How do you monitor the availability of these providers to accept new MC+ Managed Care patients?

6. What percentage of providers in your panel were able to accept new patients at any given time during CY2003?

7. How do you measure waiting time (time in office and time to appointment)?

8. What findings have you observed in regard to your evaluations and monitoring?

9. How many provider representative visits to providers were made during CY2003?
   a. Office visits _____
   b. Facility visits _____

10. Please indicate changes in each type of provider and actions taken during CY2003 to ensure provider adequacy and access to the MC+ population.

Provider Type	Number Providers Added During CY2003	Number Providers Who Left MCO During CY2003	Actions taken to improve status (if needed)
Allergy			
Cardiology			
Dermatology			
Endocrinology			
Family Medicine			
Gastroenterology			
General Medicine			
Hematology/Oncology			
Infectious Disease			
Internal Medicine			
Nephrology			
Neurology			
OB/GYN			
Ophthalmology			
Orthopedics			
Otolaryngology			
Pediatrics			
Physical Medicine/Rehab			
Podiatry			
Psychiatrist, Adult/General			
Psychiatrist, Child Adolescent			
Psychologists/Other Therapists			
Pulmonary Disease			
Rheumatology			
Urology			
Vision Care/Primary Care			
Dentists			

11. Please indicate changes in each type of facility and actions taken during CY2003 to ensure facility adequacy and access to the MC+ population.

Facility Type	Number Facilities Added During CY2003	Number Facilities Who Left MCO During CY2003	Actions taken to improve status (if needed)
Basic Hospitals			
Secondary Hospitals			
Level I or Level II Trauma Units			
Neonatal Intensive Care Units			
Perinatology Services			
Comprehensive Cancer Services			
Cardiac Catheterization			
Cardiac Surgery			
Pediatric Subspecialty Care			
Pharmacy			
Outpatient –Adult Mental Health Facilities			
Outpatient – Child/ Adolescent Mental Health Facilities			
Outpatient – Geriatric			
Inpatient/Intensive Treatment – Adult			
Inpatient/Intensive Treatment – Child/Adolescent			
Inpatient/Intensive Treatment – Geriatric			
Inpatient/Intensive Treatment-Alcohol/ Chemical Dependency			

12. Please indicate changes in the type of ancillary health care service providers and actions taken during CY2003 to ensure service adequacy and access to the MC+ population.

Provider Type	Number Providers Added During CY2003	Number Providers Who Left MCO During CY2003	Actions taken to improve status (if needed)
Physical Therapy			
Occupational Therapy			
Speech/Language Therapy			
Audiology			

13. Please provide numbers/rates for the following:

Item	Number/Rate/Explanation	Supporting Information Provided (Y/N)
Number of individual providers with closed panels, as of December 31, 2002		
Rate of completion of prenatal notification forms submitted prior to delivery (Rate of forms submitted/births)		

SUBCONTRACTOR INFORMATION

1. Please list any changes in subcontractors for MC+ members during calendar year 2003, the names of the subcontractors and the contract dates, if applicable.

Subcontractor Name	Type of Service Provided	Start Date	Stop Date

2. Please list the subcontractor(s) on a corrective action plan during 2003 and the reason(s).

Subcontractor Name	Reason	Disposition

QUALITY IMPROVEMENT INFORMATION

1. Please list the name of each clinical guideline or protocol in effect for MC+ members during 2003, the date implemented and findings(s) of studies examining implementation and outcomes of the guidelines.

Clinical Guideline	Date Implemented	Findings

2. Please list the Performance Improvement Projects in progress or completed during 2003 for MC+ members in the following areas. Attach study worksheets, findings, and reports for each.

Type	Name(s) and brief description of plan(s)	Date Started
Prevention of acute/chronic conditions		
High volume services		
High risk services		
Continuity and coordination of care		
Grievances, appeals		
Access/availability of services		
Cultural competence		

3. How do you monitor compliance with verbal lead risk screening at each EPSDT visit (6 months to 6-years of age?

4. How do you monitor compliance with blood lead testing at 12-and 24 months of age?

5. How are children under the age of 6-years of age, without a previous lead test identified and tested?

6. How do you monitor provider follow-up of positive responses to the verbal lead screens?

7. Have you conducted a Performance Improvement Project in regard to lead risk screening, testing, management, or treatment during CY2003?

8. What are the findings you observed in regard to this project? What are your follow-up plans? (please attach evaluation findings/reports)

CASE MANAGEMENT/CARE MANAGEMENT INFORMATION

1. For those members under 21 years of age, how many of your MC+ members received health plan case management in 2003? Please list:
   - ❑ Total number provided by health plan? _____
     - Prenatal _____
     - Lead _____
     - Special Needs _____
   - ❑ Total number provided by subcontractors? _____
     - Prenatal _____
     - Lead _____
     - Special Needs _____

2. Of those MC+ members that received case management, from which subcontractors did they receive case management in 2003? Please list.
   - ❑ Subcontractor Name _____ Number _____
   - ❑ Subcontractor Name _____ Number _____
   - ❑ Subcontractor Name _____ Number _____

3. How to you create opportunities and systems to enhance outcomes?

INFORMATION SYSTEMS AND CLAIMS

1. Please provide information for the following. Attach supporting information as needed.

Item	Rate/Explanation	Supporting Information Provided (Y/N)
Number of claims denied to providers / number of claims processed; and top 10 reasons. (narrative description and frequency of each)		
Number of providers submitting electronic claims / number providers submitting claims		
Number LPHAs submitting claims (any) / number of LPHAs contracted, December 31, 2003		
Rate of auto-adjudicated claims within 30 days, CY2003		
Number of days to 99% clean claims, CY2003		
Rate of state acceptance of claims, problems identified		

Appendix C. Lead Poisoning Case Management Review

Lead Poisoning Case Management Compliance Tool

Child's ID: _____ **Health Plan:** _____

Region: East Central West **County Risk:** High Low

Standards	Met	Not Met	Not Indicated
Screening Lead Risk Assessment Guide completed in 2003 BLL completed at 12 and 24 months, or if positive screen, or no prior lead test or annual if high risk area			
Surveillance Elevated lead levels reported to MCO, LPHA, and/or PCP Mandatory lab reports received from State IF EBL, monitored at 2-3 months intervals per guidelines Lead level flow sheet created with due dates for next BLL			
Assessment and Diagnosis: Apply criteria for case management services, decide who will enter case management, termination criteria (policy in place) Physical symptoms assessment completed Developmental assessment completed Nutrition assessment completed Environmental assessment/ Home inspection completed Lead source identified			
Case Management Plan and implement services via a written treatment plan Nurse home visits for education, and child, family and home assessment Set up lab testing schedule, "lab home" Parent education through mailed, written materials Test other siblings for lead toxicity Referrals: Nutritionist/WIC Early Head Start/Preschool/Parents As Teachers Speech therapy/physical therapy and/or First Steps Identify other family needs for advocacy, health services, parental support, financial assistance, housing assistance, etc.			
Medical Interventions PCP identified, follow-up appointments scheduled per guidelines EPSDT including dental, hearing, vision screens Chelation therapy initiated within 24 hours if high lead level reported Iron therapy for anemia			
Family Involvement Phone calls/letters for missed appointments and/or lead level reminders Update contact information regularly Parent adherence to lead reduction measures Parent compliance with appointments and blood levels Reported to DFS if indicated			

Standards	Met	Not Met	Not Indicated
Evaluation Lead levels declining Monitor plan regularly, identify barriers, and revise plan as needed Communicate treatment plan changes or terminations of case management to MCO. LPHA, and/or PCP Case management vendor oversight as needed			
Totals			

Appendix D. Medical Record Review Data Collection Tool

2003

Missouri MC+
Managed Care Program

External Quality Review

Medical Record Review Data Collection Tool

Review Information

Review Date			/			/						
Review Start Time												

In Military Time

Case Identification and Encounter Data Validation

Recipient ID Number												

Include all leading '0's

Recipient Last Name												

Spelling as in medical record

Recipient First Name												

Spelling as in medical record

Recipient Birthdate			/			/						

Date as in medical record

Provider ID												

Health Plan name; 'ND' if not in medical record

DCN								

Verbal Lead Screening

	Date Assessed	Date Assessed	Date Assessed	Date Assessed	Date Assessed	Date Assessed
Date	__/___/__	__/___/__	__/___/__	__/___/__	__/___/__	__/___/__
Risk Assessment Source						
Have siblings or playmates with lead poisoning?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Live in or regularly visit a house or day care built before 1950?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Reside in or visit a house built with 1978 with chipping paint or remodeling within the past six months?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Mouth or eat non-food items (Pica)	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Play in bare soil or reside in a lead smelting area?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Reside with an individual that works with or has hobbies using lead?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Receive unusual medicines or folk remedies?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Is the child between 12 & 72 months, and has never received a blood lead test?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No

Risk Assessment Source Codes: *DMS1* = DMS HCY Lead Risk Assessment Guide (most recent version) DMS2 = DMS HCY Lead Risk Assessment Guide (other versions) *PRO* = Provider-Developed *PROGRESS* = Progress or other notes *OTHER* = Other source

DCN								

Blood Lead Testing

	BLL1	BLL2	BLL3	BLL4	BLL5	BLL6
Blood Lead Test Date	__/___/__	__/___/__	__/___/__	__/___/__	__/___/__	__/___/__
Blood Lead Level (mcg/dL)						
Blood Lead Method						

Blood Lead Method Codes: V = Venous C= Capillary ND = Not Documented

Lead Case Management

Was Case Management Initiated or Continued during CY2003?	Yes No	Date Case Management Initiated __/___/__	
By Whom was Case Management Conducted? (Check all that apply)	Provider	MCO	LPHA	Other, Describe:
Case Management Activities (List):				
1				
2				
3				
4				

DCN								

Encounter Data Validation

Services/Procedures	Well Child Visit	Verbal Lead Screen	Blood Lead Level	Other	Coded Comment
Date of Service 1	__/___/__	__/___/__	__/___/__	__/___/__	
Date of Service 2	__/___/__	__/___/__	__/___/__	__/___/__	
Date of Service 3	__/___/__	__/___/__	__/___/__	__/___/__	
Date of Service 4	__/___/__	__/___/__	__/___/__	__/___/__	
Date of Service 5	__/___/__	__/___/__	__/___/__	__/___/__	
Date of Service 6	__/___/__	__/___/__	__/___/__	__/___/__	

Diagnoses	Narrative	Code (if written in record and no narrative)
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		
____/____/____		

Reviewer Signature	Review Date __/___/__
	Complete Time

Appendix E. Encounter Data Completeness and Accuracy Legends

Table 41. Inpatient Encounter Data Completeness and Accuracy Legend

Field Name	Information Present	Correct Type of Information	Correct Size of Information
	#	#	#
Recipient Identification Number	Field not blank	Numeric	8 characters
Claim Type	Field not blank	String	1 character
Last Name	Field not blank	String	≤ 14 characters
First Name	Field not blank	String	≤ 14 characters
Date of Birth	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Provider Number	Field not blank	Numeric	9 characters
Diagnosis 1	Field not blank	Alphanumeric	3-5 digits or "V" plus 3-5 digits or 3-5 digits or "E" plus 3-5 digits or "EPS"
Diagnosis 1 ≠ Diagnosis 2	Field does not duplicate Diagnosis 1		
Diagnosis 1 ≠ Diagnosis 3	Field does not duplicate Diagnosis 2		
Diagnosis 1 ≠ Diagnosis 4	Field does not duplicate Diagnosis 3		
Diagnosis 1 ≠ Diagnosis 5	Field does not duplicate Diagnosis 4		
First Date of Service	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Last Date of Service	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Units of Service	Field not blank	Numeric	5 characters
Total	**Total Claims**		

Table 42. Outpatient Encounter Data Completeness and Accuracy Legend

Field Name	Information Present	Correct Type of Information	Correct Size of Information
	#	#	#
Recipient Identification Number	Field not blank	Numeric	8 characters
Claim Type	Field not blank	String	1 character
Last Name	Field not blank	String	≤ 14 characters
First Name	Field not blank	String	≤ 14 characters
Date of Birth	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Provider Number	Field not blank	Numeric	9 characters
Diagnosis 1	Field not blank	Alphanumeric	3-5 digits or "V" plus 3-5 digits or 3-5 digits or "E" plus 3-5 digits or "EPS"
Diagnosis 1 ≠ Diagnosis 2	Field does not duplicate Diagnosis 1		
Diagnosis 1 ≠ Diagnosis 3	Field does not duplicate Diagnosis 2		
Diagnosis 1 ≠ Diagnosis 4	Field does not duplicate Diagnosis 3		
Diagnosis 1 ≠ Diagnosis 5	Field does not duplicate Diagnosis 4		
First Date of Service	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Last Date of Service	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Units of Service	Field not blank	Numeric	5 characters
Procedure Code	Field not blank	Numeric or Alphanumeric	5 characters
Total	**Total Claims**		

Table 43. Pharmacy Encounter Data Completeness and Accuracy Legend

Field Name	Information Present	Correct Type of Information	Correct Size of Information
	#	#	#
Provider Number	Field not blank	Numeric	9 characters
recipient Identification Number	Field not blank	Numeric	8 characters
First Date of Service	Field not blank	String	(mm/dd/yy) or (mm/dd/yyyy)
Drug NDC Code	Field not blank	Numeric	11 characters
Prescribing provider number	Field not blank	Alphanumeric (2 letters + 6 digits)	8 characters
Total	**Total Claims**		

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