

QUALITY IMPROVEMENT FOR MEDICAID MEMBERS OF A COMMERCIAL HEALTH PLAN: IMPACT ON RACIAL/ETHNIC DIFFERENCES

Objective: To describe one commercial Medicaid Managed Care (MMC) health plan's quality improvement (QI) program that achieved high varicella immunization rates among members of an ethnically diverse population in California.

Design: Retrospective study using administrative data.

Patients: Blue Cross of California Medicaid enrolled children who turned two years old during each calendar year of the study.

Intervention: A specialized immunization strategy was implemented with data collected at three time points, pre-intervention (baseline – 1998/1999), two-year followup (2001) and three-year followup (2002).

Main Outcome Measure: Varicella vaccination coverage after the QI initiative.

Results: A statistically significant increase in varicella immunization rates for the study population was observed between baseline (49.5%) and three-year follow up (89.4%). Baseline differences in immunization rates by physician type and patient ethnicity were reduced.

Conclusion: Trends in varicella vaccination coverage among members of this commercial MMC plan are in line with trends in overall vaccination coverage in California, indicating that commercial MMC health plans have the capacity to offer accessible and high quality care to ethnically diverse patients to mediate racial/ethnic differences. More work is needed to explore the impact of quality improvement programs of MMC plans in other areas. (*Ethn Dis.* 2007;17:447–452)

Key Words: Health Care Disparities, Medicaid, Managed Care, Immunizations, Prevention

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INTRODUCTION

Approximately 30% of the US population belonged to racial/ethnic minority groups in 2000,¹ up from 20% in 1990.² Racial/ethnic healthcare disparities are well-documented in the literature.³ *Healthy People 2010* identifies immunization as a leading indicator of progress toward the goal of eliminating racial/ethnic health disparities.

While racial/ethnic healthcare disparities have been described in many settings, less work has been done to identify racial/ethnic disparities in commercial Medicaid Managed Care (MMC) programs and how these programs can tailor quality improvement (QI) and improve health service outcomes. Evaluation of outcomes, such as receipt of vaccination by ethnicity, has been recommended.³ Although more commercial and MMC health plans have started including data on ethnicity in clinical outcomes evaluations,⁴ few have included ethnicity in monitoring quality improvement programs due to misconceptions regarding federal laws⁵ and the practical challenges of collecting data on ethnicity involving issues of privacy, accuracy and cost.⁶ Due to increased awareness of this needed data, demonstration projects have begun evaluating measures, such as health status and service utilization, by ethnicity.^{7,8}

MMC programs provide an opportunity to examine possible racial/ethnic health disparities and to assess the effectiveness of commercial MMC plans in providing accessible, high-quality services to ethnically diverse, Medicaid populations. In 2003, almost 43 million people in the United States received health care through Medicaid, with the majority (59%) through managed care plans.⁹ Of those, 39% were enrolled in

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a commercial MMC plan.¹⁰ The Medicaid population has increased every year since 1998, with a growth of 11.8 million over the past five years.¹¹ As this population continues to grow, it is critical to examine the quality of care received by ethnically diverse, predominantly low-income Medicaid populations in MMC plans.

This QI case study on varicella immunization aids in understanding the efforts by one commercial managed care plan to improve quality of care for Medicaid beneficiaries while addressing racial/ethnic differences. Varicella immunization was selected as a measurement to evaluate the effectiveness of the childhood immunization initiative because the varicella immunization rate at baseline (49.5%) was 17.9% below the Medicaid managed care mean while the differences in coverage rates for other immunizations were smaller.²⁴

METHODS

Population

Children enrolled in the commercial Medicaid managed care plan offered by

Blue Cross of California State Sponsored Programs were the intended beneficiaries of this QI initiative. The study population consisted of Blue Cross of California Medicaid enrolled children who turned two years old during each calendar year of the study, and is limited to California Medicaid recipients within one commercial health plan. Members were eligible if they were continuously enrolled for 12 months immediately preceding their second birthday, as verified by member enrollment records. A single 30-day gap in enrollment was allowed. Baseline measurements were obtained during calendar years 1998 and 1999. The post-intervention measurement period included calendar years 2001 and 2002.

Sampling Design

This QI case study is retrospective, using administrative data collected to fulfill state reporting requirements. To determine trends in varicella vaccination coverage rates among enrolled children during the period before and after the QI initiative, cross-sectional samples of children enrolled in counties throughout California were constructed at three time points: baseline (1998/99), two-year followup (2001) and three-year followup (2002).

QI Initiative Components and Assessment

The childhood immunization initiative began in June 1998 with baseline measurement and program development for Blue Cross Medicaid members, aged 9 months through 2 years. At baseline, immunizations were administered according to usual care. As part of the intervention, the American Academy of Pediatrics Recommended Childhood Immunization Schedule was mailed to primary care physicians with tools created by the health plan to assist in developing a patient tracking system to remind patients to schedule an appointment for immunization, ie, sample reminder letters and medical

record flags. On the first of each month, the health plan provided primary care physicians with a list of members, age 9 months and 18 months, due for an immunization including a mailing label for each member identified. During the third week of the month, the primary care physicians received a fax requesting verification of receipt of immunization. Responses were entered into the immunization member outreach database.

Members received newsletters containing recommended immunization schedules and articles explaining the importance of childhood immunization. Member materials were designed to be culturally sensitive, translated into five languages, and written at a fifth-grade reading level; the layout was prepared by graphic designers experienced in preparation of low literacy level materials. Parents of members due for an immunization received a letter reminding them to contact their primary care physician for an appointment.

Analysis

Descriptive Variables

The percentage of children meeting varicella immunization requirements by age two was compared by primary care physician type, member sex and member ethnicity. Primary care physician specialty type was based on physician contract files and defined as pediatrics, family medicine, general practice or other, including internists and other specialties. Sex was based on data contained in member enrollment records. Categories of race/ethnicity included non-Latino White, Latino, African American and Other. The selection of these categories was based on available sample size for each race/ethnicity based on self-reported data contained in member enrollment records.

Outcome Variables

The definition of varicella immunization and the methodology implemented to check claims to verify varicella

immunization were consistent throughout the study. Claims procedure codes were pulled at least three months after the close of any measurement year to allow sufficient time for the submission of reimbursement claims.

The measurement of varicella immunization rate was based on Health Plan Employer Data and Information Set (HEDIS) guidelines for receipt of varicella. The percentage of children with at least one of the following was calculated to determine outcome measure: varicella zoster vaccine with a date of service falling on or between the child's first and second birthdays; documented history of chicken pox by the child's second birthday; or a seropositive test result for chicken pox rendered on or before the child's second birthday. The HEDIS varicella immunization rate is based on health plan claims and/or documentation of immunization in the child's medical record. National Committee for Quality Assurance (NCQA) certified auditors, external to the health plan, validated the data abstraction from claims and physician medical records.

Medical claims data were supplemented with manual medical record review to assess services for clinical outcomes of the study. Industry standard procedure codes, ie, Current Procedural Terminology (CPT), and diagnosis codes were used to identify each immunization in claims data files. Immunization information was counted as positive for varicella immunization if the medical record contained the following information: dates of immunization history; name of the specific antigen and date the immunization was given; or, certificate of immunization prepared by an authorized healthcare provider or agency including the specific date and type of antigen. All immunizations must have been completed by the child's second birthday to be counted as positive.

Statistical Methods

The trends in varicella immunization rates by physician type, member sex

and member ethnicity during the study period were compared to baseline rates using a chi-square test, with statistical significance at the $P < .05$ level.

RESULTS

Sample Characteristics

Almost all of the case study members had gained Medicaid eligibility through Aid to Families with Dependent Children criteria (96.3% at final measurement). The primary care physician type and member sex distribution remained constant. The majority of the children in the case study were assigned to pediatricians as their primary care physician, 71.3% at baseline and 68.5% at final measurement (Table 1). Member sex distribution was 48.8% female at final measurement (Table 1). There was an increase in the number of Latinos as a proportion of the total sample over the study period.

Varicella immunization rates

There was a statistically significant increase in the varicella immunization rate from baseline for the entire study population over time. The first follow-up measurement was 31.9% higher than baseline, while the final measurement was 39.9% higher (Table 2).

Significant varicella immunization rate differences by primary care provider type were identified at baseline. Children assigned to pediatricians had higher varicella immunization rates (57.1%) than children assigned to family physicians (34.2%) at baseline. The percent of children meeting varicella immunization requirements increased over time from 49.5% at baseline to 89.4% at final measurement (Table 2). Varicella immunization rates by pediatricians were highest at all measurement periods.

At baseline, significant varicella immunization rate differences were identified by race/ethnicity (Table 2 and Figure 1). By the two-year followup (2001), all race/ethnicity groups had

Table 1. Primary care physician and two-year-old child characteristics for sampled Blue Cross of California Medicaid beneficiaries, 1998–2002

	Baseline (1998/99)		2001		2002	
	N	%	N	%	N	%
Overall	1046		2015		2133	
Physician Type						
Family Medicine	158	15.11	413	20.50	417	19.55
General Practice	95	9.08	134	6.65	141	6.61
Other	47	4.49	105	5.21	113	5.30
Pediatrics	746	71.32	1363	67.64	1462	68.54
Child Sex						
Female	495	52.12	959	81.23*	1041	89.72*
Male	551	47.19	1056	82.39*	1092	89.10*
Child Ethnicity†						
African American	205	50.24	250	77.60*	200	86.50*
Latino	340	52.35	1024	87.11*	1210	92.48*
Other	193	60.62	177	77.40*	187	87.17*
White	306	38.89	561	75.58*	532	84.40*

* Post vs baseline $P < .001$; P -value is based on a chi-square test comparing re-measurement vs baseline.

† Ethnicity data is not available for 0.17% of the members in this study.

significantly increased rates of varicella immunization. By the three-year followup (2002), the variance between ethnic groups decreased to 8.1% (non-Latino White 84.4%, Latino 92.5%). Trends in vaccination coverage rates were similar for all racial/ethnic groups after baseline measurement.

DISCUSSION

A trend toward QI in children's health has been highlighted in nonprofit and for-profit MMC. Specific QI interventions to improve quality of care have proven successful in childhood immunization and other preventive services,

Table 2. Percentage of two-year-old children with timely varicella immunizations by physician and child characteristics for Blue Cross of California Medicaid beneficiaries sampled before (1998/99) and after (2001/02) specialized immunization promotion intervention

	1998/99 (Baseline)		2001		2002	
	N	%	N	%	N	%
Overall	1046	49.52	2015	81.84*	2133	89.40*
Child sex						
Female	495	52.12	959	81.23*	1041	89.72*
Male	551	47.19	1056	82.39*	1092	89.10*
Ethnicity†						
African American	205	50.24	250	77.60*	200	86.50*
Latino	340	52.35	1024	87.11*	1210	92.48*
Other	193	60.62	177	77.40*	187	87.17*
White	306	38.89	561	75.58*	532	84.40*
Physician type						
Family Medicine	158	34.18	413	78.45*	417	89.21*
General Practice	95	29.47	134	63.43*	141	85.82*
Other	47	21.28	105	65.71*	113	83.19*
Pediatrics	746	57.10	1363	85.91*	1462	90.29*

* Post vs baseline $P < .001$; P -value is based on a chi-square test comparing re-measurement vs baseline.

† Ethnicity data is not available for 0.17% of the members in this study.

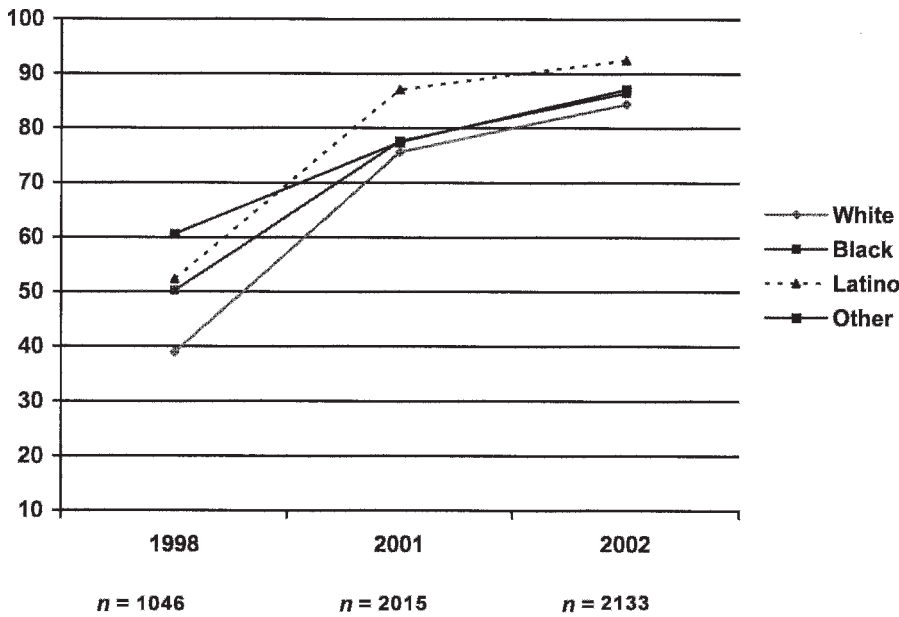


Figure 1. Percentage of Blue Cross of California Medicaid two-year-old beneficiaries with timely varicella immunization by ethnicity sampled before (1998/99) and after (2001/02) specialized immunization promotion intervention

such as the use of recall/reminder systems,¹² office system improvements,¹³ home visits,¹⁴ outreach efforts;¹⁵ however, other interventions have not.^{16,17} One study compared managed care plans that offered commercial products vs MMC plans and assessed quality of care differences, showing that MMC plans did not deliver higher quality care than commercial managed care on several performance indicators, including immunization rates for children (49% and 64% for children under two, respectively).¹⁸ These results held in a subgroup of managed care plans serving both commercial and MMC enrolled children (69% vs 54%, respectively).¹⁹ However, this study failed to account for differences in member demographics between commercial and Medicaid members. Also, the managed care plans were dichotomized strictly between commercial and Medicaid, which did not account for differences in quality of care across types of plans.

Several studies have attempted to determine underlying factors associated

with racial/ethnic disparities in children’s health care. One study observed that racial/ethnic differences were more a result of differing experiences of care among people enrolled in the same plans, rather than a result of ethnic minorities being disproportionately enrolled in plans with poor quality of care, suggesting that racial/ethnic and linguistic minorities face access and quality of care barriers even after financial access to medical services has been assured by MMC plans.²⁰

Improved clinical outcomes were demonstrated as measured by varicella immunization rates for all children in an ethnically diverse, commercial MMC population. Observed increases in varicella vaccination coverage rates among all children in the MMC may be associated with comprehensive physician-based and member-based activities that were implemented as part of this QI initiative. This included identification of members due for varicella immunization with reminder letters and telephone calls to parents. These activities have been associated with improved immunization

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rates in previous studies,^{12,13} including studies focusing on the Medicaid population.^{14,15} Physician activities included the distribution of evidence-based guidelines and assistance in establishing reminder recall systems that have also been associated with improved preventive care service use rates in previous studies.^{12,15}

The differences identified at baseline in varicella immunization rates by primary care physician type and racial/ethnic group were reduced by the three-year followup (2002). Providing these practitioners with specific tools may have facilitated all of them to increase their varicella immunization rates. The results of this study at three-year followup (2002), across all ethnic categories, were higher than national varicella immunization rates of 80.6 in 2002.²⁵ Rates in California tend to be slightly higher, though comparable to national coverage rates.²⁶ The National Committee for Quality Assurance reported a 14.4% increase in the Medicaid managed care plan mean varicella immunization rate from 1999 to 2002.²⁵ Blue Cross of California experienced a 39.9% increase in varicella immunization rates during the immunization QI project that occurred during this time period.

One approach to reducing racial/ethnic differences involves offering culturally and linguistically appropriate

services tailored to the needs of diverse populations. For example, ethnic minorities represent 79% of the 826,000 Medicaid members currently enrolled with Blue Cross of California, which serves approximately 25% of California's Medicaid managed care population.^{21,22} Fifty-nine percent of Latino members identify Spanish and 13% of other members identify one of 23 other languages, as their preferred language.²³

The results of this varicella immunization QI case study provides useful data linking use of linguistically appropriate, culturally competent member education materials along with evidence-based guidelines for physician education, with improved health care outcomes, as well as a reduction in racial/ethnic differences. Indeed, all racial/ethnic groups showed improvement in this case study. The second highest clinical outcome at final measurement was the "Other" population. This diverse group includes populations with insufficient sample size to evaluate separately (ie, Asian members who may speak Cantonese, Cambodian, Hmong, Korean, Japanese, Lao, Mandarin, Mein or Vietnamese). Health plans have the ability to implement programs that increase member utilization of preventive services and physician compliance with evidence-based guidelines. We propose that these quality initiatives may also help reduce racial/ethnic differences within health plan membership.

This QI case study is based on administrative data that was collected to fulfill state reporting requirements. Thus, the present study lacks the rigor afforded by implementation of an evaluation plan prior to the start of QI activities. One limitation of this case study is the lack of a control group. Changes in vaccination coverage rates may not be wholly attributable to the QI initiative. For example, California enacted a law in July 2001 requiring varicella vaccination or evidence of childhood history of chickenpox disease

for entry into daycare and elementary school, which may have affected varicella vaccination rates. Another limitation involves the inability to measure adherence to the intended implementation of QI activities. Regardless, we propose that this commercial MMC health plan case study yields valuable information regarding the effectiveness of quality improvement efforts and provides an important opportunity to develop academic-private partnerships that can inform future interventions to allow for a more robust evaluation design and generalizability of findings.

Another limitation is that it does not address disparities in immunization rates for vaccinations other than varicella or for children older than 24 months. Additionally, a procedural limitation involving medical record documentation exists. Immunizations may be given at public health clinics or in private physician offices under various health plans. Therefore, the claims files of a single health plan may not contain a child's entire two-year history. The health plan addressed this limitation by seeking evidence of care for each case via medical records in multiple physician's offices and community clinics.

The Medicaid membership within this health plan represents an ethnically diverse population, within the same socioeconomic level and receiving the same health benefits. Clinical outcome measures can be tracked by race/ethnicity in order to evaluate the effectiveness of QI activities in improving quality of health services for an ethnically diverse MMC population and to direct program enhancements. Health plans serving a diverse population need the ability to accurately identify outcomes of a QI initiative by ethnicity in order to develop successful, cost-effective interventions and programs. While the varicella immunization case study has shown that QI initiative-related activities are associated with increased varicella immunization rates, it is important that other

QI efforts be evaluated so that health plans achieve the best outcomes for the health delivery system.

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Statistical expertise: Jatulis
Administrative, technical, or material assistance: Rodríguez, Calhoun, Jatulis, Wood
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