Provision of Sexual Health Services to Adolescent Enrollees in Medicaid Managed Care

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Objectives. This Seattle project measured sexual health services provided to 1112 Medicaid managed care enrollees aged 14 to 18 years.

Methods. Three health maintenance organizations (HMOs) that provide Medicaid services for a capitated rate agreed to participate. These included a non-profit staff-model HMO, a for-profit independent practice association (IPA), and a non-profit alliance of community clinics. Analyses used health maintenance organizations' administrative data, chart reviews, and Medicaid encounter data.

Results. Health maintenance organizations provided primary care to 54% and well care to 20% of Medicaid enrollees. Girls were more likely than boys to have their sexual history taken or to be given condom counseling. Only 27% of sexually active girls were tested for chlamydia, with significantly lower rates of testing among those who spoke English as a second language. The nonprofit staff-model plan outperformed the for-profit independent practice association on most measures.

Conclusions. Substantial room for improvement exists in sexual health services delivery to adolescent Medicaid managed care enrollees. (*Am J Public Health.* 2002;92:1779–1783)

Adolescents are at risk for sexually transmitted disease (STD). In 1999, almost 50% of all high school students and 65% of high school seniors reported that they had engaged in sexual intercourse.[1] Early participation in sex, coupled with teenagers' tendency to underestimate behavioral risk[2] and the greater biological susceptibility of adolescent girls to chlamydia,[3] leads to increased STD incidence among adolescents. For example, in 1999, 15- to 19-year-old females had the highest rates of reported *Neisseria gonorrhoeae* and *Chlamydia trachomatis.*[4]

Providing comprehensive primary care is critical to the prevention and control of STD. However, sexual history taking is not a usual feature of primary care.[5,6] Despite national recommendations for periodic assessment of sexual activity in adolescents,[7,8] only 40% of primary care physicians report that they consistently screen adolescents for sexual activity during routine visits.[9] The frequency of sexual history taking and STD screening has not yet been reported for Medicaid managed care plans. This evaluation measured a range of sexual health services provided to adolescents in Medicaid managed care. It includes 3 health services contractors, representing varying organizational structures and profit statuses, that served adolescent Medicaid enrollees in Washington State in 1998.

METHODS

Health Maintenance Organizations, Enrollee Population, and Sample

Three health maintenance organizations (HMOs) participated in this evaluation, each offering comprehensive health benefits in return for a capitated payment from Medicaid for each enrollee; all 3 included STD and reproductive health services benefits, and none required copayments or deductibles from Medicaid enrollees. The first HMO was a for-profit national independent practice association (IPA) that contracted with individual providers and provider groups on a capitation basis. However, laboratories billed the HMO separately for tests performed outside the provider's office. The second HMO was a nonprofit alliance of community clinics with salaried clinic providers. The HMO reimbursed clinics on a capitated monthly rate, and laboratories billed the HMO directly for tests. The third provider was a nonprofit staff-model HMO with a central laboratory, central data systems, and salaried providers.

A total of 4798 adolescents aged 14 through 18 years who lived in King County, Wash, were enrolled in the 3 Medicaid products for at least 11 months during 1998. Six sequentially numbered sex-specific population lists of enrollees were created: 1284 boys and 1359 girls from the IPA; 612 boys and 646 girls from the clinic alliance; and 443 boys and 454 girls from the staff-model HMO. A computerized random-number generator reordered the lists, and chart review proceeded in that order until 100 patients from each list qualified for review. To qualify for chart review, patients had to have outpatient care documented in a medical chart retained by their plan-specified primary outpatient provider. A group of 1112 enrollees (16% of the boys and 14% of the girls from the IPA; 33% of the boys and 31% of the girls from the clinic alliance; and 37% of the boys and 33% of the girls from the staff-model HMO) were required to identify 600 persons with chart-documented outpatient care. Hereafter, we refer to the sample of 1112 as the "total sample" and to the sample of 600 as the "chart-review sample."

Data Collection

We used 2 data sources to assess health service delivery. First, the Oregon Medical Professional Review Organization (OMPRO) reviewed enrollee charts at 118 sites for the IPA, 39 sites for the clinic alliance, and 1 site for the staff-model HMO. OMPRO then matched chart-review patients to encounter data that the health services contractors submitted directly to the state Medicaid

agency. When encounter data showed services that were not captured through chart review, these additional findings were added to the dichotomous service-delivery measures.

Measures

Demographics. Data on product of enrollment, sex, date of birth, race/ethnicity, and primary language came from state Medicaid eligibility files.

Definition of primary care and well care. We defined primary care as outpatient care documented in a chart retained by an enrollee's assigned primary outpatient provider. The 600 enrollees in the chart-review sample were coded as primary care recipients, and the remaining 512 persons in the total sample were coded as primary care nonrecipients. Information from chart and encounter data were used, as described by the National Committee for Quality Assurance,[10] to categorize persons in the chart-review sample according to whether they received well care during 1998.

Sexual history taking and counseling. Using chart documentation, we coded sexual history taking dichotomously, depending on whether number of sex partners, sex of sex partners, or past STD or other sexual history had been documented for any 1998 visit. The dichotomous contraceptive history taking/counseling and condom counseling measures reflected whether a patient's chart documented any reference at all to these services during 1998.

STD and pregnancy diagnosis and testing. Chart reviewers abstracted information on testing for cervical cancer, other STD, and pregnancy. For all 3 of these measures, additional evidence was obtained from *Current Procedure Terminology (CPT)*[11] and *International Classification of Diseases, Ninth Revision, Clinical Modification (ICM-9-CM)*[12] codes in the encounter data. Reviewers also checked for positive test results or provider diagnoses, which were summarized for the entire 12-month period.

Estimation of sexual activity in girls. We classified girls as sexually active if in chart or encounter data there was any reference to intercourse, or if a service was noted that is usually performed only if a girl is sexually active.[13] Encounter data evidence included *ICD-9-CM, CPT,* and the Health Care Financing Administration's *HCFA Common Procedure Coding System* (*HCPCS*)[14] codes related to reproductive health issues.

Statistical Analysis

Pearson χ^2, Mann–Whitney, and Kruskal–Wallis tests were used to identify significant univariate differences between plans in enrollee characteristics and service provision. Independent predictors of the primary outcomes were identified through logistic regression models. All potential predictors and confounders of interest were entered simultaneously and retained in the final models. The probabilities associated with estimated odds ratios were based on the likelihood ratio test, and 95% confidence intervals were based on the Wald test. Statistical significance was evaluated after application of the Bonferroni adjustment within sets of analyses.

RESULTS

Demographic Composition of the Total Sample and Chart-Review Sample

Table 1 summarizes the demographic characteristics of the enrollees in the 3 products. There were significant racial differences between HMOs for both the total sample of 1112 enrollees ($\chi^{212}=71.685$, $P=.000$) and the chart-review sample of 600 enrollees ($\chi^{212}=75.199$, $P=.000$), with higher percentages of Whites in the IPA and the staff-model HMO than in the clinic alliance. In both the total sample ($\chi^{24}=65.537$, $P=.000$) and the chart-review sample ($\chi^{24}=54.752$, $P=.000$), there were significant HMO differences in the proportion of enrollees speaking English as a primary language, with the staff-model HMO having a higher number of primary English speakers than the IPA and the clinic alliance.

Overall Rates of Primary Care, Well Care, and Sexual Health Care

Of the 1112 persons selected for the sample, 600 (54%) received primary care from their HMO of enrollment during 1998, with HMO-specific service rates of 51% (IPA), 49% (clinic alliance), and 64% (staff-model HMO). In both univariate and multivariate analyses (examining enrollment HMO, sex, race/ethnicity, primary language, and age), only HMO was a significant predictor of primary care provision ($P<.001$). Well care was provided to 20% of the total sample, at HMO-specific rates of 18% (IPA), 17% (clinic alliance), and 27% (staff-model HMO). As with primary care, regression models showed only HMO of enrollment to be a significant predictor of well care ($P<.002$).

Of the 600 enrollees who received some primary care during 1998, 32% (35% of boys and 29% of girls) had a well care visit; just under 30% (15% of boys and 45% of girls) had a sexual history taken; 19% (5% of boys and 33% of girls) had contraceptive history taking/counseling; and 13% (7% of boys and 18% of girls) received condom counseling. There was a significant association between well care and sexual history taking; 47% of 194 enrollees with well care and 21% of 406 without well care had sexual/STD histories taken at a well care or other visit during the 12-month period (Fisher's exact $P=.000$). Of the 600 patients reviewed, only 1% of boys and 6% of girls were diagnosed with an STD, and 6% of the girls were pregnant. Eleven percent of girls either were pregnant or had been diagnosed with an STD.

Between-HMO Comparisons of Sexual History Taking, Counseling, and Chlamydia Testing

Sexual health services were provided so rarely to teenage boys that no significant differences between the 3 HMOs could be detected. However, there were substantial differences in the HMOs' provision of sexual health services to girls, with the clinic alliance and staff-model HMO always providing more services than the IPA. The HMOs differed significantly in rates of chlamydia testing for all girls (IPA=7%, clinic alliance=12%, staff-model HMO=23%; $\chi^{22}=11.130$, $P=.004$) and for sexually active girls (IPA=15%, clinic alliance=22%, staff-model HMO=41%; $\chi^{22}=9.798$, $P=.007$).

Table 2 summarizes the results of the logistic regression models of chlamydia testing of sexually active girls. In the multivariate

TABLE 1—Enrollee Demographic Characteristics, by Plan

	IPA	Clinic Alliance	Staff-Model HMO	P[a]
Total sample, n	392	406	314	
Race/ethnicity (%)				.000*
White	41.6	28.8	46.2	
African American	12.5	17.2	19.1	
Asian/Pacific Islander	27.3	33.7	12.7	
American Indian	1.3	1.5	1.3	
Hispanic	2.8	7.9	3.2	
Other or mixed race	12.8	9.1	14.6	
Unknown	1.8	1.7	2.9	
Primary language (%)				.000*
English	63.5	64.3	84.7	
Non-English	34.7	35.2	11.8	
Unknown	1.8	0.5	3.5	
Age on 1/1/98 (median)	15	15	16	.192
Chart-review sample, n	200	200	200	
Race/ethnicity (%)				.000*
White	46.0	27.0	46.5	
African American	8.0	20.0	18.5	
Asian/Pacific Islander	31.5	36.5	10.0	
American Indian	1.0	1.0	2.0	
Hispanic	2.0	7.0	3.0	
Other or mixed race	11.0	7.5	16.5	
Unknown	0.5	1.0	3.5	
Primary language (%)				.000*
English	63.0	64.0	88.5	
Non-English	35.5	36.0	8.5	
Unknown	1.5	0.0	3.0	
Age at first 1998 visit (median)	16	16	16	.327

Note. IPA = independent practice association; HMO = health maintenance organization.
[a]Probability associated with plan differences (race/ethnicity and language differences tested with Pearson χ^2 test; age differences tested with Kruskal–Wallis test).
*Statistically significant at $\alpha = .05$ after Bonferroni correction for 3 tests.

model, primary language was a significant predictor of chlamydia testing: only 1 of the 32 girls in the non-English/unknown language group received such testing. Although provision of chlamydia testing was strongly linked to provision of pelvic examinations, only 54% of all pelvic examinations documented in charts included a chlamydia test.

DISCUSSION

In this large random sample of teenagers enrolled in 3 Medicaid managed care products, we identified a number of deficiencies in delivery of sexual health services. Few enrollees received optimal preventive care. Only 54% of the sample received any primary care during a 1-year period of continuous enrollment, and only 20% received adolescent well care, a factor strongly associated with sexual history taking in this sample. Receipt of sexual health services was particularly rare for all boys and for girls whose primary language was not English.

Findings from a national self-report survey of adolescent boys[15] have documented low reproductive health services utilization in the adolescent male population, and rates of sexual history taking and counseling in our male sample were even lower than those reported for Medicaid-insured boys in the national sample. The suggestion is that capitated managed care is particularly unsatisfactory as a mechanism for delivering reproductive health services to a vulnerable teenage male population. The low rates of service provision to girls in the non-English language group may have reflected patient–provider language discordance or cultural differences. Other studies have documented deficits in health care provision to patients whose primary language does not match that of the predominant culture.[16]

HMOs differed in their rates of delivering sexual health services. For most measures, the IPA provided fewer services than the staff-model HMO. At least some of the differences in product performance may be attributable to structural differences among the 3 HMOs. Staff-model HMOs stress clinical service protocols, standardized charting tools, and centralized laboratory testing. HMOs that are managed in this fashion also have the capacity to engage in research efforts that focus on service provision, a factor that will serve to improve delivery of services. If our findings resemble patterns in other health care markets, they suggest that HMOs that manage capitated payments but lack integrated systems to improve care and promote prevention are unlikely to provide optimal sexual health services to adolescents. This finding is not encouraging, given that staff-model HMOs now cover less than 3% of people living in the United States.[17]

The chlamydia testing rate of 26.8% in our sample falls far short of national performance standards, which recommend annual screening of all sexually active girls under age 20,[7,18] particularly because most of this testing was diagnostic testing of symptomatic girls rather than screening of asymptomatic girls (data not shown). None of the HMOs employed urine-based chlamydia tests; the need for pelvic examinations to obtain endocervical specimens is admittedly a barrier to screening, but even among sexually active girls who received pelvic examinations, 38% were not tested for chlamydia. This finding demonstrates that coupling chlamydia screening with routine pelvic examinations would improve screening rates, as suggested by another evaluation.[19]

TABLE 2—Logistic Regression Models of Chlamydia Testing: Sexually Active[a] Girls Aged 14–18 Years Enrolled in Medicaid Managed Care (n = 157)

Predictor	Percentage Tested	Unadjusted OR	*P*	Adjusted OR[b]	*P*	95% CI
Plan of enrollment			<.008*		<.04	
IPA	14.9	1.00		1.00		
Clinic alliance	22.2	1.63		1.60		0.53, 4.79
Staff-model HMO	41.1	3.98		3.51		1.24, 9.85
Race/ethnicity			>.05		>.28	
White	32.8	1.00		1.00		
African American	37.5	1.23		1.26		0.48, 3.25
Asian American	15.4	0.37		1.15		0.28, 4.63
Other or unknown	15.8	0.38		0.43		0.14, 1.27
Primary language			<.001*		<.002*	
English	32.8	1.00		1.00		
Non-English/unknown	3.1	0.07		0.08		0.008, 0.65
Age at first 1998 visit[c]	. . .	1.07	>.65	1.25	>.19	0.88, 1.77

Note. OR = odds ratio; CI = confidence interval; IPA = independent practice association; HMO = health maintenance organization.
[a]Classification of sexually active girls was based on a chart note indicating sexual activity or on visit content in chart or encounter data that indicated receipt of testing, diagnosis, or services related to sexual and reproductive health.
[b]Odds ratios for each predictor, adjusted for the remaining 3 predictors in the model.
[c]Age was modeled as a linear predictor; departure from linear trend was nonsignificant.
*Statistically significant at $\alpha = .05$ after Bonferroni correction for 4 tests.

A limitation of our evaluation is that it considered services provided during only 1 calendar year. Hence, we also examined encounter data documenting services delivered during 1999 to the 600 enrollees in the chart-review sample. For the composite sample of 177 girls with evidence of sexual activity in either year, the chlamydia test rate for the 2-year period increased from 27% to 39%. Only 1 additional boy had a documented chlamydia test during 1999. These data suggest that expanding the review period would likely increase our estimates of sexual health services delivery. Even so, the estimates provide a picture of very limited service.

The results of this evaluation provide a baseline on which improvement can be measured in the future. Interventions to improve sexual health services provision to enrollees in Medicaid managed care are urgently needed. ■

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Contributors

W.E. Lafferty, W. Kassler, K.L. Irwin, and G. Tao participated in study design and analysis review. C. Holan participated in data collection and study design. L. Downey participated in data collection, analysis, and review. All authors participated in writing the article.

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Human Participant Protection

The work was done in accordance with requirements of the institutional review board of the Centers for Disease Control and Prevention, the Human Research Review Section of the Washington State Department of Social and Health Services, and the Human Subjects Division of the University of Washington.

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