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## Medicaid Coverage of Sexually Transmitted Disease Service Visits

William S. Pearson, PhD, MHA<sup>1</sup>, Ian H. Spicknall, PhD, MPH<sup>1</sup>, Ryan Cramer, JD, MPH<sup>1</sup>,  
Wiley D. Jenkins, PhD, MPH<sup>2</sup>

<sup>1</sup>Division of STD Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia;

<sup>2</sup>Department of Population Science and Policy, Southern Illinois University School of Medicine, Springfield, Illinois

### Abstract

**Introduction:** Chlamydia and gonorrhea are the most commonly reported notifiable infections in the U.S., with direct medical costs for the treatment of these infections exceeding \$700 million annually. Medicaid currently covers approximately 80 million low-income Americans, including a high percentage of racial and ethnic minorities. Studies have shown that racial and ethnic minority populations, particularly those with low SES, are at an increased risk of acquiring a sexually transmitted disease. Therefore, as Medicaid expands, there will likely be a greater demand for sexually transmitted disease services in community-based physician offices. To determine demand for these services among Medicaid enrollees, this study examined how often Medicaid was used to pay for sexually transmitted disease services received in this setting.

**Methods:** This study combined 2014 and 2015 data from the National Ambulatory Medical Care Survey and tested for differences in the proportion of visits with an expected payment source of Medicaid when sexually transmitted disease services were and were not provided. All analyses were conducted in October 2018.

**Results:** During 2014–2015, an estimated 25 million visits received a sexually transmitted disease service. Medicaid paid for a greater percentage of sexually transmitted disease visits (35.5%, 95% CI=22.5%, 51.1%) compared with non–sexually transmitted disease visits (12.1%, 95% CI=10.8%, 13.6%). Logistic regression modeling, controlling for age, sex, and race of the patient, showed that visits covered by Medicaid had increased odds of paying for a sexually transmitted disease service visit (OR=1.97, 95% CI=1.12, 3.46), compared with other expected payment sources.

**Conclusions:** Focusing sexually transmitted disease prevention in Medicaid populations could reduce sexually transmitted disease incidence and resulting morbidity and costs.

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Address correspondence to: William S. Pearson, PhD, MHA, Division of STD Prevention, Centers for Disease Control and Prevention, 1600 Clifton Road, Mailstop E-80, Atlanta GA 30333. wpearson@cdc.gov.

SUPPLEMENTAL MATERIAL

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## INTRODUCTION

With a combined total of more than 2 million reported cases in 2016, chlamydia and gonorrhea are the most commonly reported notifiable diseases in the U.S.<sup>1</sup> The latest surveillance data indicate that the incidence of these infections is rising sharply,<sup>2</sup> and direct medical costs for the treatment of these infections total nearly \$700 million per year.<sup>3</sup>

Previous work has determined that people who are from racial and ethnic minority populations or who have relatively low SES are considered to be at greater risk of acquiring sexually transmitted diseases (STDs) compared with people who are not from racial and ethnic minority populations and those who have relatively higher SES measures.<sup>4</sup> Successful interventions and reductions in national STD rates are difficult due in part to the frequently asymptomatic nature of both infections, with the majority of infected individuals unaware of their status.<sup>2</sup> Screening strategies that are based on population or behavioral risk profiles have thus been developed (e.g., females under age 26 years and men who have sex with men). Still, many who are at risk do not receive recommended screening.<sup>5</sup> As the U.S. grapples with both increasing rates of STDs and the specter of antimicrobial-resistant gonorrhea,<sup>6</sup> it may be useful to examine means to increase the efficiency and efficacy of existing screening paradigms.

STD screening occurs primarily in public or private clinical settings, and the majority of cases have been identified through primary and emergency care venues,<sup>2,7</sup> and there are trends demonstrating decreasing numbers of bacterial STDs being reported by STD clinics.<sup>8</sup> Alternatively, publicly funded safety-net STD clinics and screening services provided by local health departments have traditionally been important to prevention efforts by serving medically underserved subpopulations who may lack insurance or ready access to quality clinical care.<sup>9</sup> Unfortunately, public health systems generally, and STD clinics and local health department–provided STD screening services specifically, are currently experiencing reduced funding and subsequent reduced capacity.<sup>10–12</sup> It is possible that recent healthcare system changes have affected the financing and delivery of STD care, particularly in public clinics and among populations at increased risk for STDs.<sup>13,14</sup>

Currently, Medicaid covers more than 70 million low-income Americans, including a high percentage of racial and ethnic minorities, and accounts for 16% of all healthcare spending in the U.S.<sup>15</sup> Furthermore, since the passing of the Affordable Care Act, Medicaid rolls have grown by approximately 30%,<sup>16</sup> and among people who are Medicaid recipients, approximately 80% receive their care through a managed care plan, which allows for patients to receive care in community-based physician offices.<sup>17</sup> These circumstances suggest that there is greater demand being placed on publicly funded health care, and this health care is increasingly being delivered through public/private partnerships, such as private insurance companies contracting with Medicaid to provide health services to Medicaid enrollees in community-based physician offices. Therefore, because of the growing role of Medicaid in funding health services, and the increased likelihood of STDs being diagnosed in populations covered by Medicaid, these analyses seek to determine the extent to which Medicaid is used to pay for STD care in community-based physician offices.

## METHODS

### Study Sample

Data for these analyses were taken from the most recently available ambulatory care data released by the National Center for Health Statistics. Two years (2014 and 2015) of data from the National Ambulatory Medical Care Survey were combined for these analyses in order to ensure a large enough sample size of visits that had an associated STD service. The National Ambulatory Medical Care Survey is a publicly available, nationally representative survey of visits to non-federally employed, office-based physicians in the U.S. This sample excludes physicians practicing in hospitals, emergency departments, and federally funded clinics, such as federally qualified health centers (FQHCs), and offices that serve primarily U.S. Veteran populations.<sup>18</sup>

### Measures

All 74,042 sampled visits were stratified by expected payment source, including private insurance, Medicare, Medicaid/State Children's Health Insurance Plan (SCHIP), and all other payer types, and provided weighted estimates of the total number of visits made for each expected payment source. Demographic estimates were provided for each expected payment source, including mean age of the patients making the visits, percentage of visits made by females, and percentage of visits made by non-Hispanic white individuals, in order to provide an overall description of the population.

All visit records were searched for indication of an STD service being provided at the visit. The criteria used to identify these visits as having an associated STD service included a diagnosis of chlamydia, gonorrhea, or unspecified venereal disease; a chlamydia or gonorrhea test being performed; or STD counseling being provided at the visit. Using these criteria, a total of 732 unweighted visits were classified as having an associated STD service.

### Statistical Analysis

These visits were stratified by mean age of the patients making the visits, percentage of visits made by females, percentage of visits made by non-Hispanic white patients, and percentage of visits where Medicaid/SCHIP was the expected payment source. Differences in proportions were tested using a *t*-test for mean age and chi-square tests for percentage of visits made by females and non-Hispanic whites. Logistic regression analysis was then used to calculate the odds of having Medicaid/SCHIP as the expected payment source for the STD visit, while taking into account the age (defined as <40 years versus ≥40 years), sex (male versus female), and race (white versus non-white) of the patient. SUDAAN, version 11.0, was used for all analyses in order to take into account the complex sampling design of the surveys and to apply national weights to the estimates. All analyses occurred in October 2018.

## RESULTS

Over the 2-year period of 2014 to 2015, there were nearly 1.9 billion office visits made to community-based physicians in the U.S. Private insurance was the expected payment source

for approximately 48% of these visits. Medicare accounted for approximately 27% of these visits. Medicaid/SCHIP accounted for an estimated 12.4% of these visits and all other expected payment sources accounted for an estimated 12.3% of these visits. Among visits where Medicaid/SCHIP was the expected payment source, patients were typically younger, with a mean age of 27.7 years, and more racially diverse, with an estimated 46.0% of visits made by non-Hispanic white patients, compared with all other expected payment sources. The percentage of visits made by females was not significantly different among the expected payment sources and ranged from an estimated 56.9% for visits where Medicare was the expected payment source, up to an estimated 62.4% of visits where Medicaid/SCHIP was the expected payment source (Table 1).

After stratifying by STD service, of all visits, approximately 25 million (1.3%) had an associated STD service provided at the time of the visit. The mean age of patients attending visits for STD services was significantly younger compared with all other visits (31.6 vs 48.6 years,  $p<0.05$ ). A significantly greater percentage of the STD service visits were made by females compared with all other visits (76.8% vs 58.1%,  $p<0.05$ ). Patients who were non-Hispanic white were a significantly smaller percentage of STD service visits compared with all other visits (41.9% vs 68.8%,  $p<0.05$ ). The percentage of visits paid for by Medicaid/SCHIP was significantly higher for STD service visits compared with all other visits (35.5% vs 12.1%,  $p<0.01$ ; Table 2).

Unadjusted logistic regression models demonstrated that visits with Medicaid/SCHIP as the expected payment source had nearly four times the odds of having an STD service visit compared with all other payment sources (OR=3.99, 95% CI=2.19, 7.25). After controlling for patients' age, sex, and race, visits covered by Medicaid/SCHIP still had nearly twice the odds of having an STD service visit compared with all other payment sources (OR=1.97, 95% CI=1.12, 3.46; Table 3).

## DISCUSSION

These findings suggest that Medicaid disproportionately covers services for STDs compared with other payment sources. This disproportionate payment for STD services most likely reflects the composition of Medicaid populations as being those more likely to require STD care: typically younger and having a greater proportion of minorities and females. Therefore, focusing efforts for STD prevention in Medicaid populations may be worthwhile.

Currently, the majority of Medicaid beneficiaries receive health services through MCOs,<sup>16,17</sup> which may be the reason for more Medicaid services being delivered in private physician offices than has traditionally been the case. Furthermore, studies looking into utilization of healthcare services after Medicaid expansion have shown that states that have expanded their Medicaid programs have also seen overall increased use of health services.<sup>19</sup> Therefore, because of increases in the number of Medicaid-eligible individuals, as well as increases in Medicaid managed care, it is possible that more people are seeking STD care in private physician offices, especially in states where Medicaid expansion has occurred. Stakeholders and policymakers should monitor the STD prevention implications of these significant shifts in Medicaid enrollment and administration.

Previous work examining the effects of managed care models on delivering STD services to Medicaid populations suggest that several barriers exist to providing quality STD services, including low-reimbursement rates for high-cost services, as well as a lack of understanding of the downstream costs of untreated STDs.<sup>20</sup> Further work in this area has suggested that in order to curb STD infections, the structuring of contracts between providers and MCOs should focus more on reimbursement for quality of care as opposed to volume of care.<sup>21,22</sup>

More recent research found that STD testing rates among a Medicaid-insured, HIV-positive population were as low as 20% across 20 states, suggesting that Medicaid recipients are not receiving optimal care because this is a population for which engagement with the healthcare system should be higher than in the general population.<sup>23</sup> Various payment reforms have been implemented in order to address quality of care issues such as this. One such program by the Centers for Medicare and Medicaid Services, called the Delivery System Reform Incentive Payment, provides payments to safety-net hospitals providing care to large Medicaid populations, with the funds being tied to providers meeting performance metrics (i.e., pay for performance).<sup>24</sup> Delivery System Reform Incentive Payment also includes patient-level measures, such as establishing medical homes for patients, as well as expanding ambulatory clinic hours and increasing incentive payments to physician providers.<sup>25,26</sup> More generally, pay for performance, which has been a trend in healthcare financing for more than a decade, is merely one form of payment reform that has been proposed or is being implemented currently across the U.S., with the goal of improving quality and resource efficiency. Other alternatives include bundled payments, accountable care organizations, and capitation. It is hoped that programs such as this will increase the quality of all services provided to Medicaid recipients, including STD services.

However, even with Medicaid expansion, traditional STD clinics are still experiencing demand for services. A survey conducted in 2013 at 21 STD clinics around the U.S. found that nearly half of all patients seeking care in the clinics were uninsured.<sup>27</sup> Additionally, it was found that among the patients seeking care in those clinics who did have health insurance, about half were willing to use their insurance for their care, but others were not due to privacy and out-of-pocket costs.<sup>28</sup> Even in states with notable Medicaid expansion, many people still sought care in STD clinics because of being uninsured.<sup>29,30</sup> Therefore, it appears that STD clinics will remain as a source of care for people who are either uninsured or who are unwilling to use their insurance for STD care. Even so, as mentioned previously, STD clinics are beginning to bill for Medicaid services in order to cover their costs.<sup>14</sup> Because of this, researchers may wish to investigate whether patients seeking care in STD clinics receive comparable care to those who seek STD care in community-based physician offices. Stake-holders should monitor U.S. healthcare system reforms, including amendments to the eligibility standards of Medicaid (or other public programs), in a way that broadens the program to additional populations, for how they affect the rate of people being uninsured, and ultimately, access to STD services.

Alternatively, although patients may still seek care for STDs outside of private physician offices, Medicaid remains an important payer in settings such as FQHCs and STD clinics. Medicaid has been determined to be a significant payer for FQHCs and an issue brief put out by the Medicaid and CHIP Payment and Access Commission noted that Medicaid is the

largest source of revenue for FQHCs and that nearly half of FQHC patients were also Medicaid beneficiaries.<sup>31</sup> Relatedly, a study conducted in 2017 at 56 local health departments in North Carolina found that 95% of the surveyed clinics were billing Medicaid for services.<sup>32</sup> For studies conducted specifically in STD clinics, Medicaid was determined to be a significant source of revenue. One of these studies conducted in the early 2000s in King County, Washington noted that nearly 31% of one clinic's revenue was derived from Medicaid,<sup>33</sup> and a more recent study conducted in 2017 at a publicly funded STD clinic in Rhode Island found that Medicaid was an important source of revenue and could possibly even support clinic operations when some patients remain uninsured.<sup>34</sup> Therefore, focusing STD prevention efforts toward Medicaid populations, even when seeking care in other venues, can be beneficial.

### Limitations

There are several limitations that should be considered when interpreting these results. First, the STD service was defined using ICD codes and data set variables indicating chlamydia/gonorrhea test performance and STD counseling provision during the visit. This survey data do not allow the use of Current Procedural Terminology codes, perhaps underestimating the total STD services provided. Second, the authors were not able to determine whether a Medicaid enrollee was also enrolled in a Medicaid managed care plan. Managed care may offer improvements in quality of care compared with people receiving care that is paid for strictly through a fee-for-service arrangement. Third, expected payment source was used as the outcome of interest and these data are based on claims that are not adjudicated, meaning that it was not possible to determine which insurer actually paid for the claim.

### CONCLUSIONS

Population groups historically at increased risk of STD infection (lower income, minority race, and younger age) and associated morbidity (female sex) are disproportionately represented among Medicaid/SCHIP enrollees. The increasing utilization of Medicaid/SCHIP as an insurer may have implications for STD prevention efforts nationally, and specifically for populations at increased infection risk. Simply providing health insurance through Medicaid does not necessarily ensure access to high-quality STD services. Therefore, in order to ensure sexual health at a larger population level, it may be beneficial to communicate the necessity of STD prevention to programs that are charged with caring for vulnerable populations, such as Medicaid. Additionally, as the healthcare landscape continues to evolve, including moving more Medicaid and SCHIP care to managed care environments, it is important to monitor the scope of services covered by publicly funded health insurance programs to determine how government funds are being allocated and the quality of care received.

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**Table 1.** Demographics of Visits to Community-based Physicians in the U.S., by Payer Type, 2014–2015 NAMCS

Variable	Private insurance	Medicare	Medicaid/SCHIP	All other <sup>d</sup>	p-value
Weighted sample, <i>n</i>	903,718,000	506,410,000	233,001,000	232,385,000	—
Mean age, years, % estimate (95% CI)	41.5 (40.3, 42.6)	72.3 (71.8, 72.7)	27.7 (25.4, 30.0)	44.1 (42.2, 46.0)	<0.05
% Female, % estimate (95% CI)	58.4 (56.8, 59.9)	56.9 (55.5, 58.3)	62.4 (58.7, 66.0)	57.5 (54.3, 60.6)	<0.05
% White, % estimate (95% CI)	71.4 (69.1, 73.6)	74.8 (70.5, 78.6)	46.0 (41.3, 50.7)	65.7 (58.5, 72.3)	<0.05

Source: 2014 and 2015 NAMCS.

Note: Boldface indicates statistical significance ( $p < 0.05$ ).

<sup>a</sup> All other payers includes worker's compensation, self-pay, no charge/charity, other.

<sup>b</sup> Weighted estimates rounded to the nearest 1,000.

NAMCS, National Ambulatory Medical Care Survey; SCHIP, State Children's Health Insurance Program.

**Table 2.** Estimates of STD Office Visits to Community-based Physicians in the U.S., 2014–2015 NAMCS

Variable	STD service visits	All other visits	<i>p</i> -value
Weighted sample size, <sup>a</sup> <i>n</i>	25,083,000	1,850,433,000	—
Mean age, years, % estimate (95% CI)	31.6 (28.6, 34.6)	48.6 (47.5, 49.8)	<0.05
% Female, % estimate (95% CI)	76.8 (68.0, 83.7)	58.1 (56.9, 59.3)	<0.05
% White, % estimate (95% CI)	41.9 (32.6, 51.8)	68.8 (66.3, 71.2)	<0.05
% Medicaid/SCHIP, % estimate (95% CI)	35.5 (22.5, 51.1)	12.1 (10.8, 13.6)	<0.05

Source: 2014 and 2015 NAMCS.

Note: Boldface indicates statistical significance ( $p < 0.05$ ).

<sup>a</sup>Weighted estimate rounded to the nearest 1,000.

NAMCS, National Ambulatory Medical Care Survey; SCHIP, State Children's Health Insurance Program; STD, sexually transmitted disease.

**Table 3.** Odds of Medicaid/SCHIP as Expected Payment Source for STD Visits to Community-based Physicians in the U.S., 2014–2015 NAMCS

Variable	$\beta$	OR (95% CI)
Model 1 <sup>a</sup> : Unadjusted odds of having Medicaid/SCHIP as expected payment source		
All other payers <sup>b</sup>	0.0	1.00 (1.00, 1.00)
Medicaid/SCHIP	1.05	<b>3.99</b> (2.19, 7.25)
Model 2 <sup>a</sup> : Adjusted <sup>c</sup> odds of having Medicaid/SCHIP as expected payment source		
All other payers <sup>b</sup>	0.0	1.00 (1.00, 1.00)
Medicaid/SCHIP	0.68	<b>1.97</b> (1.12, 3.46)

Source: 2014 and 2015 NAMCS.

Note: Boldface indicates statistical significance ( $p < 0.05$ ).

<sup>a</sup>Weighted sample size  $n = 1,875,516,000$ , rounded to the nearest 1,000.

<sup>b</sup>All other payers includes private insurance, Medicare, workers compensation, self-pay, no charge/charity, and other.

<sup>c</sup>Controlling for age (<40 vs ≥40 years), sex (male vs female), and race (white vs non-white) of patient.

NAMCS, National Ambulatory Medical Care Survey; SCHIP, State Children’s Health Insurance Program; STD, sexually transmitted disease.