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Access to Benzathine Penicillin G Treatment for Persons With Syphilis, Maricopa County, Arizona, 2021

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Abstract

Background: As the incidence of syphilis continues to increase, examining benzathine penicillin G (BPG) treatment data provides valuable insight for public health strategies. This study analyzed the trends of where BPG is administered relative to the initial clinical site of syphilis diagnosis. Our findings are timely in the context of recent national BPG shortages.

Methods: The analysis included persons diagnosed with any syphilis stage in Maricopa County, Arizona, from January 1, 2021, to December 31, 2021. The Arizona surveillance database (PRISM) was the source of demographic, testing, and treatment data.

Results: Of a total of 4028 persons with syphilis, 3038 (75.4%) received at least 1 injection of BPG. Among persons who received an initial BPG injection, only 1719 (56.6%) were diagnosed and treated at the same clinical site type. The Maricopa County Sexually Transmitted Disease Clinic administered BPG to 48.8% (n = 1483) of persons with syphilis who received an initial injection.

Conclusions: Our findings analyze trends in BPG administration that are likely due to treatment referral practices and medication cost. Administration of BPG is not guaranteed at the clinical site of diagnosis, highlighting concerns regarding access to BPG. A burden is placed on patients who

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are required to leave their diagnosing provider to seek syphilis treatment at other health facilities that administer BPG.

Syphilis is a critical public health concern as the incidence is rising each year.[1] The recommended treatment of syphilis is injectable benzathine penicillin G (BPG).[2] In the early stages (primary, secondary, and early latent), only one injection is required.[2] Persons with late latent or unknown duration syphilis require 3 injections spaced at 1-week intervals.[2] Although alternatives are available for nonpregnant persons with a penicillin allergy, BPG is the only recommended treatment option for pregnant persons with syphilis.[2] Timely treatment of syphilis is imperative in preventing sexual and vertical transmission and long-term consequences of the disease.

Benzathine penicillin G access is limited and is associated with a high-cost burden in the United States.[3–5] As of April 2023, published retail pricing for BPG ranged from $2295 to $2460 for a minimum order quantity of 10 prefilled syringes of 1.2 million units (MU) each.[3] Thus, the estimated cost for a single administration of the 2.4-MU dose (two 1.2-MU syringes) recommended for treatment of early syphilis ranged from $460 to $492. Three injections of 2.4 MU of BPG are required for treatment of late latent and unknown duration syphilis (cost range, $1380–$1476). In contrast, medical institutions that qualify for discounted drug pricing under the Health Resources & Services Administration 340B Drug Pricing Program can obtain BPG for $0.20 per dose.[6–8] The Maricopa County Department of Public Health qualifies for 340B pricing and operates the only publicly funded sexually transmitted disease (STD) clinic in the county, making it a referral center for STD treatment.[9,10] Few private clinics in Maricopa County stock BPG forcing patients to seek alternative clinics for treatment. Time to BPG administration can vary by diagnosing location, with STD clinics more reliably providing timely treatment.[10] In April 2023, the US Food and Drug Administration announced a national shortage of BPG citing limited supply due to increased demand.[11] Understanding where patients are diagnosed and where BPG is administered can inform strategies to expand BPG access and facilitate timely patient treatment.

Within the context of BPG access barriers, our study sought to characterize BPG administration trends in Maricopa County. A retrospective investigation was conducted of all persons diagnosed with syphilis in Maricopa County, AZ, in 2021 to quantify and compare the syphilis diagnosing sites with BPG treatment sites.

MATERIALS AND METHODS

Data Collection

For persons diagnosed with syphilis in Maricopa County, demographic characteristics, specimen collection site, and treatment location were extracted from the Patient Reporting Investigation Surveillance Manager (PRISM). The PRISM database is hosted and supported by the Arizona Department of Health Services. Data were imported into SAS Enterprise Guide (v.8.2) for analysis.

Study Population

Maricopa County syphilis records were reviewed for persons reported with primary, secondary, early latent, late latent, and unknown duration syphilis from January 1, 2021, to December 31, 2021. The following demographic variables were extracted: age, birth sex, race and ethnicity, sexual orientation, pregnancy status, syphilis stage, and human immunodeficiency virus (HIV) status.

Treatment data are collected through epidemiological surveillance conducted by Maricopa County communicable disease investigators (CDIs). Each person diagnosed with syphilis is assigned a priority category based on an internal prioritization schema or "reactor grid" classification system that factors in personal characteristics and risk factors (e.g., gender, age, pregnancy status, nontreponemal testing titer level, and HIV coinfection).[12] Persons classified as "higher priority" (e.g., pregnancy, females of childbearing age, high nontreponemal titer, younger age, or early stage of infection) are assigned to CDIs to conduct prompt investigations and follow-up on treatment status and sexual partners. Lower priority is given to patients with low nontreponemal test titers (female individuals of non-childbearing age and male individuals) and those older than 60 years. Communicable disease investigators attempt to collect treatment information for all persons with syphilis, regardless of interview status and reactor grid priority level, through review of medical records and verification from treating providers. Persons with syphilis can self-report treatment during case interviews; however, self-report must be verified by CDIs. For this study, all positive syphilis cases were included for analysis.

The clinical facility where the initial serum specimen collection occurred that yielded the diagnosis of syphilis was extracted from laboratory reporting[13] along with the facility that administered the first BPG injection. All clinical facility types are preset, coded, and auto assigned after manual data entry of reported syphilis cases using prespecified PRISM site-type categories. As an example, syphilis patients diagnosed at different private practice primary care facilities are categorized uniformly as site-type "private physician or clinic." The same site-type categories were used for both diagnosis and treatment locations. We created new site types to further characterize private practice facilities. Through use of Internet search, consultation with CDIs, and cross-reference with the Arizona Health Care Cost Containment System list of federally qualified health centers (FQHC),[14] site-type classifications were reassigned when indicated and 3 new categories were made: FQHC, Community Health Center, and outpatient obstetrics and gynecology (ObGyn) clinics. Clinics eligible to be either FQHC or an alternative category were preferentially classified as FQHC. To ensure accuracy and consistency, each clinical site was compared with its corresponding category type. Any discrepancies were adjusted by the corresponding author (E.M.) and reviewed with 2 additional study members (J.B., M.M.T.). Clinical facility type was assigned to 100% of the included cases.

For this analysis, all syphilis specimen collection sites and BPG administration reporting sites were grouped into 18 site types. Syphilis cases in this analysis were tested at 639 unique sites. There were 239 unique sites where BPG was administered (Supplemental Table 1, http://links.lww.com/OLQ/B42). Clinical facilities providing care to only an eligible patient population were noted for discussion as "selective" and included the following:

military, correctional facilities, HIV clinics, drug treatment facilities, outpatient ObGyn clinics and the Indian Health Service (IHS).

Outcome Measures

The primary outcomes for this study were site of syphilis diagnosis and site of BPG treatment. Initial laboratory ordering provider was used as a proxy for syphilis diagnosing site. Clinical facility site of initial BPG injection was used as a proxy for location of BPG treatment, irrespective of additional alternative regimens (e.g., doxycycline) received and/or subsequent BPG injections given at other locations. An additional outcome of interest was the number of syphilis cases not treated with an injection of BPG. These patients represent those who received alternative regimens or no treatment.

Statistical Analyses

We computed descriptive statistics for demographic variables among all syphilis cases. Frequencies for site of specimen collection and BPG administration were calculated using subsets of pre-determined site-type categories. Proportions of diagnosed and treated cases were calculated using total cases as a denominator. Site-specific denominators of initial laboratory ordering provider types were used as a proxy to calculate the proportions of cases diagnosed and treated at the same facility. All statistical analyses were conducted using SAS Enterprise Guide (v.8.2; Cary, NC). Disease surveillance, data collection, evaluation, and analysis are ongoing public health surveillance activities and thus are considered nonresearch according to Title 45 Code of Federal Regulations 46.102(*l*).

RESULTS

Demographics of Positive Syphilis Cases

Of the total 4028 persons reported with syphilis in Maricopa County, AZ, from January 1, 2021, to December 31, 2021, 3038 (75.4%) were reported to have received at least 1 BPG injection (Table 1). A total of 990 persons with syphilis (24.6%) did not have a report of receiving BPG and received no treatment or alternative treatments.

Among persons who received a BPG injection, the median age was 32 years, compared with 34 years among persons who did not receive BPG. By birth sex, male individuals represented 69.6% (n = 2805) of persons with syphilis and 75.5% (n = 2119) were treated with at least 1 injection of BPG. Female individuals made up 30.4% (n = 1223) of the sample, with 75.1% (n = 919) receiving BPG. There were a total of 226 pregnant persons in this sample, with 208 (92.0%) receiving BPG.

By race and ethnicity, Hispanic/Latino persons represented 42.3% (n = 1717) of all cases, with 79.1% (n = 1358) receiving an injection of BPG. Non-Hispanic/Latino White persons comprised 28.3% (n = 1138) of all cases, with 71.0% (n = 808) receiving BPG.

Receipt of BPG for Syphilis Treatment by Diagnosing Clinical Site Type

Among all positive syphilis cases (n = 4028), the difference in receiving or not receiving BPG at any site type varied by the diagnosis site type (Table 2). For patients who did not

have a record of receiving BPG (n = 990, 24.6%), 89.9% (n = 890) were diagnosed outside of the STD clinic.

Sites that diagnosed the largest number of persons with syphilis included the STD clinic (n = 712), hospitals (n = 703), correctional facilities (n = 690), and private physicians or clinics (n = 545). Among patients diagnosed at the STD clinic, 86.0% (n = 612) received a BPG injection either on-site or at another site type. Among patients diagnosed at a hospital, 71.8% (n = 505) received BPG. For persons diagnosed by a correction facility, 71.7% (n = 495) received a BPG injection. For persons diagnosed by a private physician office or clinic, 69.5% (n = 379) received BPG. When comparing the STD clinic with all other facilities, 86% of cases diagnosed at the STD clinic received BPG compared with 73% of cases diagnosed at the other facilities that went on to receive BPG.

Other populations of interest include patients diagnosed in outpatient ObGyn clinics and by mental health providers. Obstetrics and gynecology clinics diagnosed 135 syphilis cases. This represents 11.0% of female individuals in the sample. Among female individuals diagnosed at an ObGyn office, 123 (91.1%) received BPG at any site type. Persons diagnosed by a mental health provider site had the lowest rate of receiving BPG, 47.3% (n = 43).

Diagnosis and BPG Treatment by Clinical Site Type Among Persons Who Received at Least 1 BPG Injection

For persons who received a BPG injection (n = 3038), differences between diagnosing site and treatment site were widely distributed (Table 3, Fig. 1). A total of 1719 patients (56.6%) were diagnosed and treated at the same site type.

Among persons administered BPG, the 3 site types that treated the largest number of syphilis cases (n = 2330, 76.7%) were the STD clinic (n = 1483, 48.8%), correctional facilities (n = 494, 16.3%), and hospitals (n = 353, 11.6%). The IHS diagnosed 115 persons (3.8%) who received BPG and directly administered BPG to 120 (4.0%).

Among all treated persons with syphilis, ObGyn offices diagnosed 123 female individuals (4.0%) who received BPG but only directly administered BPG to 6 female individuals (0.2%). For all female individuals in the sample, ObGyn offices administered BPG to 0.5% (6 of 1223).

Several sites treated a large proportion of persons with syphilis as a ratio of cases they diagnosed. The STD clinic directly administered BPG to 97.7% (n = 598) of the persons diagnosed there. Correctional facilities treated 94.5% (n = 468) of their diagnosed persons, IHS directly treated 94.8% (n = 109) of syphilis patients they diagnosed and the military directly treated 81.3% (n = 26). Hospitals served as the BPG administration site for 47.3% (n = 239) of their diagnosed persons.

Syphilis Cases Diagnosed Outside of the STD Clinic

Among persons who received a BPG injection, 2426 (79.9%) were diagnosed at a site outside of the STD clinic (Fig. 2, Supplemental Table 2, http://links.lww.com/OLQ/B42).

Of those diagnosed outside the STD clinic, 885 persons (36.5%) received at least 1 BPG injection from the STD clinic. Several sites had greater than 70% of their diagnosed persons receiving an initial BPG injection from the STD clinic: laboratory (n = 45, 80.4%), outpatient ObGyn (n = 96, 78.1%), and urgent care (n = 87, 79.8%)

DISCUSSION

Our study shows that BPG is not routinely administered by all site types that diagnose syphilis in Maricopa County. A limited proportion of patients were treated with BPG at their site type of diagnosis. The single STD clinic administered BPG to almost half of all persons in Maricopa County with syphilis and treated the largest proportion of patients who were diagnosed at the same site type during this evaluation period. Other clinical sites with specific patient eligibility criteria, some with 340B pricing, also treated large proportions of patients they diagnosed. More than 90% of pregnant persons received BPG. The path forward in curbing the syphilis epidemic relies on persons who test positive for syphilis being able to access timely and affordable BPG treatment. To our knowledge, no previously published evaluations have analyzed trends in BPG administration based on location of syphilis diagnosis.

Our analysis shows that only approximately 60% of persons with syphilis were treated with BPG at their site of diagnosis. A burden is placed on persons who test positive for syphilis at a non-BPG administration site provider to seek an alternative clinical site for treatment. Furthermore, our results found that 25% of persons with reported syphilis did not receive any injection of BPG, with the rate of BPG receipt differing by diagnosing site. The discrepancy in care delays timely treatment,[15] decreases the likelihood of treatment completion,[10] and potentially results in the use of alternative regimens that have less reliable compliance than a BPG injection.[2] We hypothesize that most patients receiving alternative treatment do not have a penicillin allergy and are instead given a multiday alternative oral regimen of doxycycline because of the lack of BPG access, which raises concerns regarding treatment compliance. Differences in syphilis diagnosis and treatment site likely influence a patient's treatment completion.[9,15]

Administration of BPG primarily occurs at fewer sites with the STD clinic, correctional facilities, and hospitals collectively responsible for nearly 80% of initial BPG injections. Aside from the STD clinic, BPG seems concentrated to sites that serve "eligible" patient populations that qualify to receive care at the institutions. Sites treating greater than 80% of the patients it diagnosed include the IHS, correctional facilities, and the military. Other facility types, while providing BPG, do not treat a high proportion of persons who test positive for syphilis, making the STD clinic a default for those without qualifying patient characteristics. Sites that diagnose fewer individuals and infrequently treat persons with BPG are not reliable referral centers, thus limiting access options for individuals in Maricopa County.

Our study revealed that, although only 20% of individuals in our sample were diagnosed with syphilis at the STD clinic, nearly 50% received BPG there. Non-STD clinics may not routinely stock BPG likely because of high cost and infrequent syphilis diagnoses.[3,7]

Maricopa County area referrals for syphilis treatment default to the STD clinic where patients can receive testing, treatment, and partner services for the low and waivable cost of $20.[16] As a Health Resources & Services Administration 340B covered entity, the STD clinic secures BPG at the discounted rate.[6,7] The role of the STD clinic is critical for diagnosis and treatment of syphilis; however, the high volume of patients demonstrates the need for BPG access in additional health care settings. Solutions are urgently needed to ease the STD clinic burden, reduce the cost of BPG, and expand 340B pricing to alternative community sites.

Among pregnant persons, more than 90% received at least 1 injection of BPG. In our sample, more than 10% of female individuals were diagnosed at their ObGyn's office, whereas less than 1.0% received an initial BPG injection at an ObGyn clinic. Almost 80% of these persons diagnosed at an ObGyn office received their initial BPG injection at the STD clinic. Reduction in maternal and congenital syphilis is a public health priority with prevention opportunities that include timely access to both screening and treatment.[17–19] The trends in BPG administration among pregnant women reflect public health CDI efforts to bring women to treatment and frequent health care touchpoints during prenatal visits.[9] However, referral to the STD clinic could result in delays in treatment. BPG administration for pregnant patients at their diagnosing provider's office, or potentially at home, could prevent delays or missed treatment in pregnancy and congenital syphilis cases.

The limited availability of BPG is likely due to several factors. The first is cost. Despite penicillin being a generic drug, the sterile injection formulation is associated with a high production cost in the United States.[3,20] The cost difference between retail BPG is staggering compared with clinics who qualify for 340B pricing.[7,21]As a result, cost can be prohibitive for private providers to regularly stock BPG. In addition, the US BPG supply relies on one manufacturer, creating supply risk when demand is not met and alternative US suppliers are not available.[11,22,23] From 2014 to 2016, there was a global shortage of BPG with ongoing shortages being reported in some countries and now occurring again in the United States.[11,22,23] Broader access to 340B pricing and expansion of the supply chain in the United States could help increase the accessibility of BPG to patients.

There are several limitations to consider when interpreting these data. First, our study does not directly compare diagnosis and treatment provider site on a patient level. Instead, we examined the comparison between sites as an aggregate in categories. Our study relied on the classification system in the PRISM database that we verified for each site type as described in the Methods section. We recognize that some site-type categories comprise a mix of individual sites with potential differences in access to BPG and 340B pricing eligibility. However, our analysis characterizes trends in diagnosis and BPG administration at an aggregate level. Second, the Maricopa County Department of Public Health STD Program prioritizes patients to be investigated and tracked by CDIs. Patients classified as low priority are less likely to have treatment information recorded by CDIs. However, the prioritization does focus on patient characteristics and risk factors, such as untreated syphilis among pregnant persons and female individuals of child-bearing age. Because of the inclusion of all investigated positive cases, there may be instances in which treatment was administered but not documented in the system. Although we recognize that this occurs, it

is a low likelihood that treatment was missed as CDIs work diligently to obtain treatment records before dispositioning a patient as “not treated.” Lastly, although more than 90% of pregnant persons received BPG, the timing of treatment was not evaluated and thus cannot be assumed to have prevented congenital syphilis.

Our study lays the foundation for future studies and development of public health interventions. Future research can examine health care access for syphilis diagnosis and treatment discrepancies on an individual patient level to elucidate barriers to care. We recognize that the purchase of BPG can be a poor economic choice for private providers. To combat this, there is opportunity to develop robust referral networks that connect patients with health care facilities close to their homes and integrate services into community health centers. In addition, giving authority to pharmacists to administer BPG would allow providers to prescribe the injection for patients to receive at a local pharmacy. An increased focus on expansion of 340B pricing opportunities is needed. The STD clinic is a reliable institution to treat patients with syphilis, but it shoulders a significant amount of the treatment burden. All STD clinics qualify for 340B discounted pricing; however, we recognize that strict rules prohibit the administration of 340B purchased medications at ineligible facilities.[8] Opening additional STD clinics and creating partnerships with communities to have STD clinics deliver BPG can expand 340B pricing access. In addition, the high cost of BPG in the United States compared with other countries warrants a closer look at risks of sourcing the drug from a single manufacturer.[5] There is work to be done to bring BPG to patients and decrease the time to syphilis treatment.

Maricopa County, the third largest health jurisdiction in the United States, has a high incidence of syphilis and demand for treatment and served as an ideal site for this study.[24–26] Our study reveals several important aspects of BPG treatment access. It shows the concentrated administration of BPG in the community and the resulting patient burden of seeking care outside of the diagnosing provider facility to obtain timely and appropriate treatment. We hypothesize that expanding BPG administration will reduce community-level syphilis, improve treatment completion, and decrease the time to treatment and rate of use of alternative regimens. As the syphilis epidemic continues both locally and nationally, creating new systems for BPG access is imperative.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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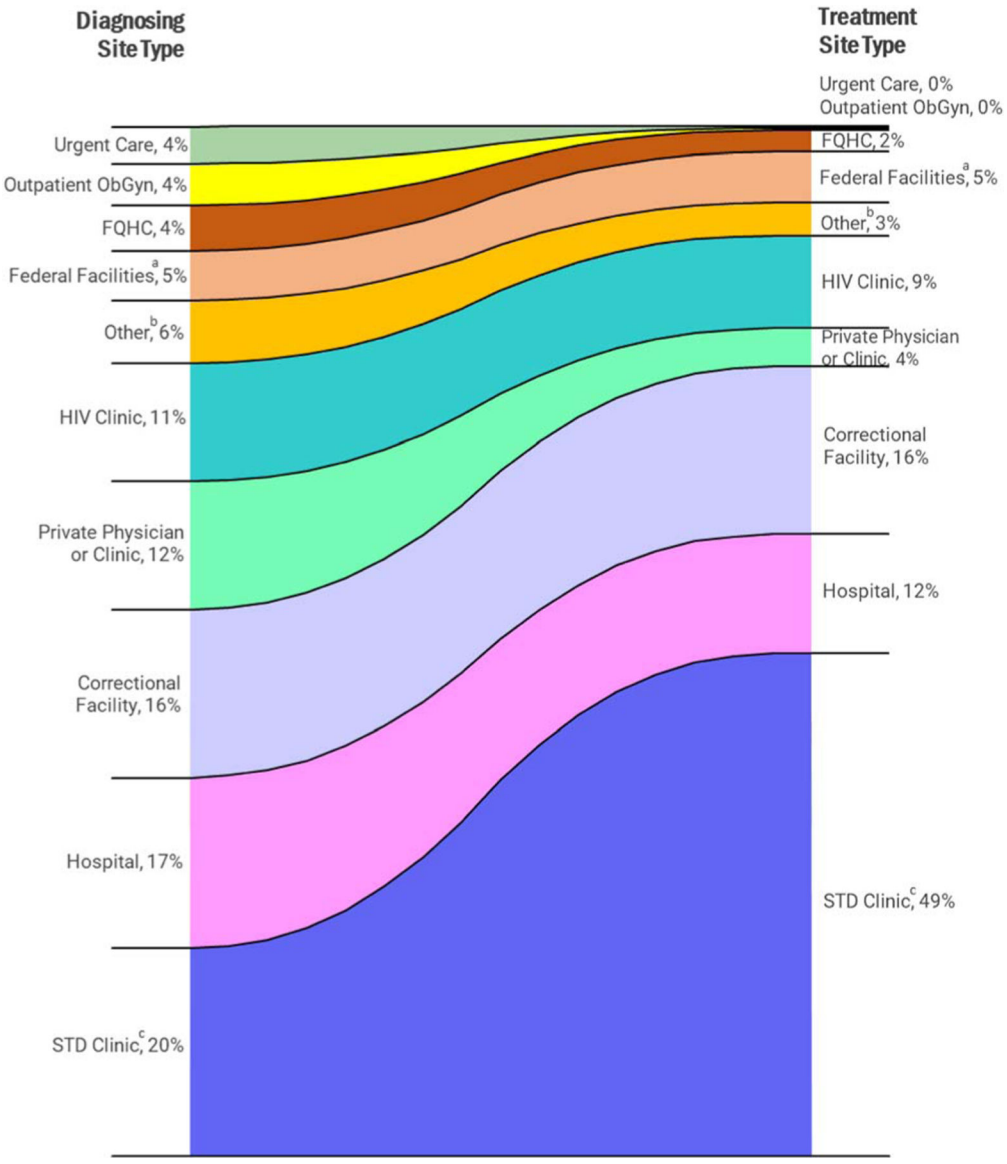

Figure 1.

Diagnosis site type versus treatment site type among syphilis cases receiving BPG, Maricopa County, 2021. [a]Federal facilities: Indian Health Service and Military. [b]Other: blood bank, community health center, drug treatment, family planning, laboratory, mental health provider, other health department clinic (other county health departments), and school-based clinic. [c]STD clinic corresponds to the Maricopa County Department of Public Health STD Clinic.

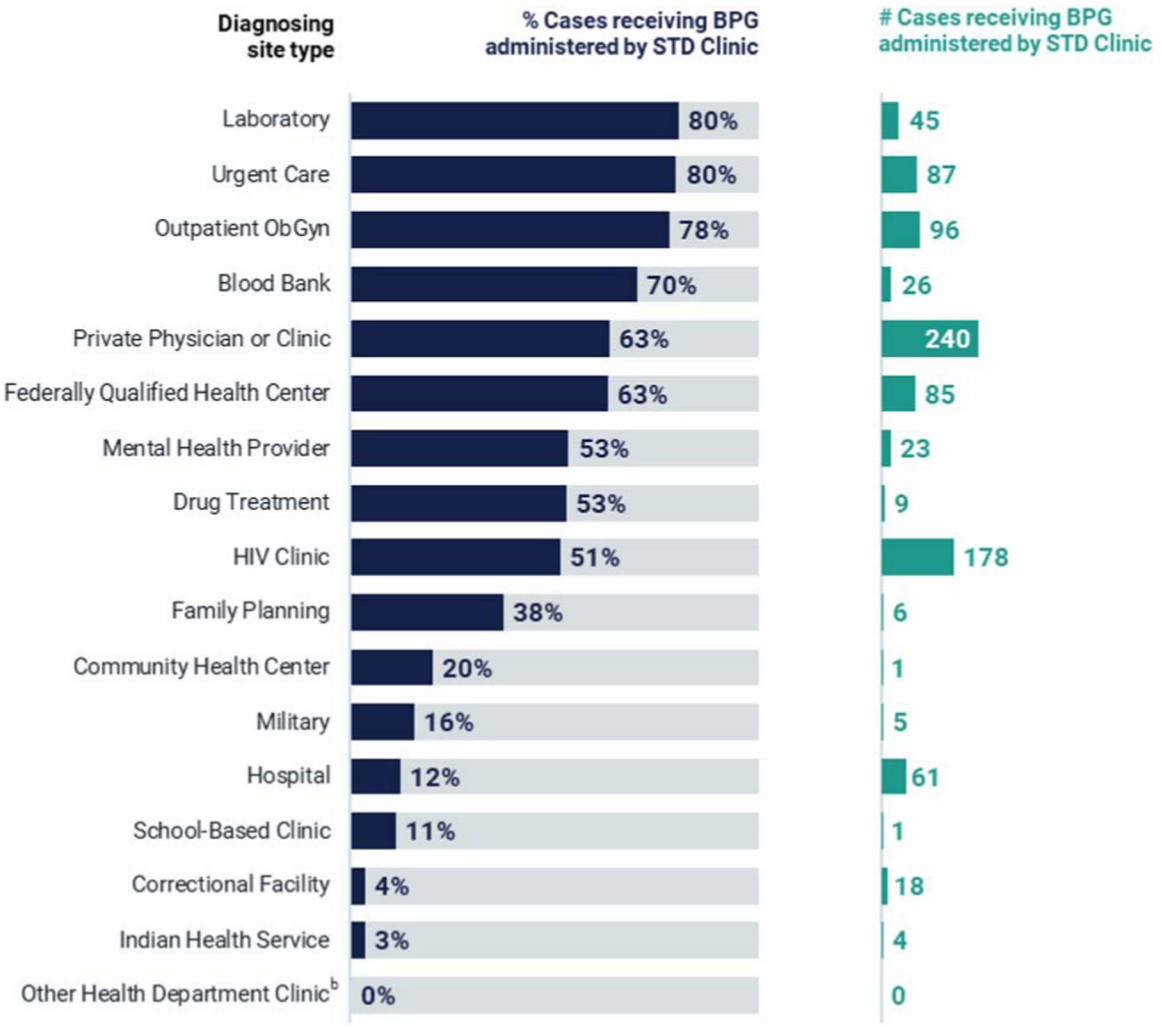

Figure 2.

Administration of BPG at the STD clinic[a] by diagnosing site type, Maricopa County, 2021.

Note: Cases include those diagnosed at a facility outside of the STD clinic and received at least one injection BPG. [a]STD clinic corresponds to the Maricopa County Department of Public Health STD Clinic. [b]Other health department clinics correspond to other county health departments.

TABLE 1.

Demographics of Syphilis Cases by Benzathine Penicillin G (BPG) Administration Status, Maricopa County, 2021

	Treatment Status				
	Received BPG		No BPG Received*		Total
Total, n (%)	3038	75.4%	990	24.6%	4028
Age, median, y	32		34		33
Birth sex, n (%)					
Male	2119	75.5%	686	24.5%	2805
Female	919	75.1%	304	24.9%	1223
Race and ethnicity, n (%)					
Hispanic/Latino	1358	79.1%	359	20.9%	1717
White, non-Hispanic/Latino	808	71.0%	330	29.0%	1138
Black, non-Hispanic/Latino	477	76.6%	146	23.4%	623
American Indian or Alaskan Native, non-Hispanic/Latino	219	79.4%	57	20.7%	276
Unknown	41	41.8%	57	58.2%	98
Multiracial, non-Hispanic/Latino	80	77.0%	24	23.1%	104
Asian, non-Hispanic/Latino	42	82.4%	9	17.7%	51
Other, nonspecified	†	†	†	†	15
Sexual orientation, n (%)	†	†	†	†	6
Heterosexual	1456	75.9%	463	24.1%	1919
Gay or lesbian	1000	81.3%	230	18.7%	1230
Bisexual	233	79.0%	62	21.0%	295
Unknown	349	59.8%	235	40.2%	584
Pregnancy status among female individuals, n (%)					
Yes	208	92.0%	18	8.0%	226
No	695	73.5%	251	26.5%	946
Unknown	16	31.4%	35	68.6%	51
Syphilis stage, n (%)					
Primary	490	81.1%	114	18.9%	604
Secondary	715	86.7%	110	13.3%	825
Early latent	807	81.6%	182	18.4%	989
Late latent or unknown duration	1026	63.7%	584	36.3%	1610
HIV status, n (%)					
HIV+ before/within 30 d of STD	584	78.5%	160	21.5%	744
HIV+ infection after 30 d of STD	42	82.4%	9	17.7%	51
Unknown	2412	74.6%	821	25.4%	3233

*Persons diagnosed with syphilis could have received an alternative treatment regimen or no treatment.

†Cells with ≤5 were suppressed to protect patient privacy.

TABLE 2.

Receipt of Benzathine Penicillin G (BPG) Among Syphilis Cases by Diagnosing Site Type, Maricopa County, 2021

Diagnosing Site Type	Received BPG		No BPG Received*		Total
Blood bank	37	80.4%	9	19.6%	46
Community health center	5	83.3%	1	16.7%	6
Correctional facility	495	71.7%	195	28.3%	690
Drug treatment	17	56.7%	13	43.3%	30
Family planning	16	84.2%	3	15.8%	19
FQHC	135	80.4%	33	19.6%	168
HIV clinic	347	80.5%	84	19.5%	431
Hospital	505	71.8%	198	28.2%	703
Urgent care	109	65.3%	58	34.7%	167
IHS	115	83.9%	22	16.1%	137
Laboratory	56	63.0%	33	37.1%	89
Mental health provider	43	47.3%	48	52.8%	91
Military	32	72.7%	12	27.3%	44
Outpatient ObGyn	123	91.1%	12	8.9%	135
Other health department clinic†	3	75.0%	1	25.0%	4
Private physician or clinic	379	69.5%	166	30.5%	545
School-based clinic	9	81.8%	2	18.2%	11
STD clinic‡	612	86.0%	100	14.0%	712
Total	3038		990		4028

*Persons diagnosed with syphilis could have received an alternative treatment regimen or no treatment.

†Other health department clinic corresponds to other county health departments.

‡STD clinic corresponds to the Maricopa County Department of Public Health STD Clinic.

TABLE 3.

Proportion of Syphilis Cases Diagnosed and Treated With Benzathine Penicillin G (BPG) at the Same Site Type, Maricopa County, 2021

Site Type	Diagnosed, n (%)*	Treated, n (%)*	Diagnosed and Treated at Same Site, n (%)†
Blood bank	37 (1.2)	0 (0)	0 (0)
Community health center	5 (0.2)	31 (1.0)	0 (0)
Correctional facility	495 (16.3)	494 (16.3)	468 (94.5)
Drug treatment	17 (0.6)	2 (0.1)	1 (5.9)
Family planning	16 (0.5)	15 (0.5)	10 (62.5)
FQHC	135 (4.4)	63 (2.1)	7 (5.2)
HIV clinic	347 (11.4)	275 (9.1)	154 (44.4)
Hospital	505 (16.6)	353 (11.6)	239 (47.3)
Urgent care	109 (3.6)	5 (0.2)	0 (0)
IHS	115 (3.8)	120 (4.0)	109 (94.8)
Laboratory	56 (1.8)	0 (0)	0 (0)
Mental health provider	43 (1.4)	28 (0.9)	8 (18.6)
Military	32 (1.1)	31 (1.0)	26 (81.3)
Outpatient ObGyn	123 (4.1)	6 (0.2)	2 (1.6)
Other health department clinic‡	3 (0.1)	9 (0.3)	3 (100)
Private physician or clinic	379 (12.5)	112 (3.7)	93 (24.5)
School-based clinic	9 (0.3)	11 (0.4)	8 (88.9)
STD clinic§	612 (20.1)	1483 (48.8)	598 (97.7)
Total	3038	3038	1719 (56.6)

Sample includes all patients diagnosed with syphilis that received at least 1 injection of BPG.

*Column percentage.

†Row percentage.

‡Other health department clinic corresponds to other county health departments.

§STD clinic corresponds to the Maricopa County Department of Public Health STD Clinic.