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Fanta Drame July 27, 2023

Routine, Opt-Out Syphilis Screening for Women in Local Jails – Lessons Learned in Implementation

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Hubert Department of Global Health
2023

Abstract

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By Fanta N. Drame

Syphilis affects thousands of reproductive-age women each year and leads to adverse pregnancy outcomes. Syphilis rates, more specifically primary and secondary syphilis, across the United States continue to rise, with the largest increase occurring among women, between 2020 and 2021. The primary and secondary syphilis rate among women increased by 53.3%, compared to a 22.9% increase among males. In 2021, there were a total of 2,855 cases of congenital syphilis; 23 of these cases resulted in infant deaths, and 197 cases were stillbirths. Timely testing and treatment can prevent syphilis and congenital syphilis case, but systematic barriers such as institutionalized racism and limited access to health care lead to many missed opportunities in identifying and preventing syphilis. Surveillance data has revealed that the majority of cases are found in non-STD clinics, demonstrating the need to integrate syphilis screening in non-traditional settings. Surveillance data and studies also demonstrated that a history of incarceration or sexual contact with someone who has been incarcerated has an association with syphilis diagnoses. This highlights the opportunity for correctional facilities to serve as a point to disrupt syphilis transmission by providing point-of-care syphilis screening and treatment. To evaluate different mechanisms to expand syphilis screening and treatment services to incarcerated women, we conducted a demonstration project to better understand the implementation of routine, opt-out screening of women in local jails. This project was implemented across three states, ranging from small to large population sizes in both the western and southeastern regions of the US. Local health departments were encouraged to develop a strategic partnership model with a local jail to combat increases in syphilis among women and congenital syphilis. Throughout the project, lessons learned yielded ways of identifying opportunities for addressing challenges. Issues addressed included policy adherence and alignment, data collection and access, screening and treatment protocol alignment, staffing capacity and buy-in, as well as detainee acceptance of the screening. These lessons learned can inform future efforts to implement and optimize routine opt-out syphilis screening in jails to expand access to a segment of a disproportionately affected, vulnerable population and disrupt syphilis transmission and adverse pregnancy outcomes.

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Chapter 1. Literature Review

1.1. The Current Issue of Syphilis and Congenital Syphilis

Syphilis has reemerged as a growing public health crisis as numbers increase across all populations in the U.S. Compared to chlamydia and gonorrhea, the number of syphilis cases has skyrocketed. Between 2000 and 2021, a staggering 459% increase in syphilis cases was recorded, significantly outpacing the increases in gonorrhea and chlamydia cases, which saw upticks of 96% and 13%, respectively.[1] 2021 marked the 10th consecutive year of increases in primary and secondary syphilis, with the rate climbing from 4.5 to 16.2 cases per 100,000 people since 2011.[1] Primary and secondary syphilis are the most infectious stages of syphilis and are thought to be driving the syphilis epidemic in the United States. Significant racial disparities exist in syphilis. American Indian/Alaskan Native and African Americans are disproportionately affected by primary and secondary syphilis. Compared to their white counterparts (8.7 cases per 1000,000 individuals), they are five times more likely to be diagnosed with syphilis (42.2 and 40.6 cases per 1000,000 individuals, respectively).[1] Men who have sex with men account for 36% of cases, followed by women, who make up approximately 23% of primary and secondary syphilis cases. Men who have sex with women only account for 21% of cases, and men with unknown sex of sex partners[1] Although the majority of cases are found among men, women are experiencing higher rates of increases compared to men. From 2012 to 2021, the primary and secondary syphilis rate among women increased by 711.1%, compared to a 165.2% increase among men.[1] The growing prevalence of syphilis among women has significant implications, given the potential for congenital syphilis. In the absence of appropriate screening, diagnosis, and treatment, fetal infection with syphilis can lead to severe outcomes, including stillbirths, neonatal deaths, and a spectrum of neurological and physical sequelae. In 2021, the incidence

rate of congenital syphilis escalated to 77.9 per 100,000 individuals, marking a five-fold increase within just five years from 2016.[1] As a consequence, nearly 3,000 neonates were infected with syphilis, resulting in an estimated 200 fatalities.[1] Despite congenital syphilis being largely preventable, it is increasing at an alarming rate in the United States.

1.2. Missed Opportunities in Congenital Syphilis Prevention

The framework of missed opportunities in prevention, gleaned from surveillance data, provides a clear picture of gaps in congenital syphilis prevention.[2] The five missed prevention opportunities are 1) no timely prenatal care or syphilis testing, 2)timely prenatal care and no syphilis testing, 3)timely syphilis testing, but no adequate maternal treatment, 4)late identification of seroconversion during pregnancy, and 5)evidence of congenital syphilis despite maternal treatment.[2] In 2021, 41% of congenital syphilis cases were associated with a lack of timely prenatal care or syphilis testing, and 34% were tied to inadequate treatment despite timely testing.[1] These findings underscore systemic issues in healthcare that hinder effective identification, treatment, and prevention of congenital syphilis.

The initiation and physical and social access to prenatal care are critical factors in ensuring both maternal and neonatal health. Consequently, when approximately half of the mothers do not have access to appropriate prenatal care, they miss the opportunity to be screened for a multitude of conditions and infections, including syphilis. The underlying reasons for such avoidance or delay in seeking prenatal care reflect the challenges faced in accessing syphilis screening and treatment services as a whole. These encompass a multitude of factors ranging from individual to systemic barriers. On a personal level, the lack of financial resources, inadequate time allocation, and

obstacles in accessing healthcare services, such as transportation issues, are all common hurdles.[3-5] Prior negative experiences with the healthcare system may also contribute to delayed care, compounded by the lack of health literacy and education. Moreover, systemic and structural barriers, often underpinned by racism and other forms of social vulnerability, are other significant barriers. For example, mothers with a history of incarceration, substance abuse, or homelessness might face additional challenges in accessing healthcare services due to stigma, insurance coverage, or a lack of appropriate care facilities.[6]

These challenges underscore the pressing need for implementing alternative strategies to identify and treat syphilis outside of conventional clinical settings/STD clinics in order to meet populations where they are. Correctional facilities emerge as potential points of intervention in this regard, given that a number of individuals with syphilis share an incarceration history or have a partner who has an incarceration history.[7] Therefore, proactive syphilis screening, treatment, and education programs in such settings may significantly contribute to disrupting the transmission cycle.

1.3. Healthcare in Correctional Facilities

The United States has the largest incarcerated population globally.[8] In 2021, approximately 1.2 million adults were imprisoned,[9] with 636,000 individuals held in local jails.[10] The number of females in local jails saw a 1.5-fold higher increase than males. The number of female inmates increased by 22%, while the number of male inmates increased by 16%.[10] The risk of incarceration is higher among minority groups, those who are of low socioeconomic status, and people who have mental health needs. Compared to White, non-Hispanic individuals, Black non-

Hispanic individuals are 5.1 times more likely to be incarcerated, followed by American Indian/Alaska Native and Hispanic people, who are 4.1 and 2.5 times more likely to be incarcerated, respectively.[10]

1.4. Deliberate Indifference

In the influential 1976 case of Estelle v. Gamble, the United States Supreme Court ruled on the legal principle that deliberate indifference to an incarcerated individual's serious medical needs constitutes the "unnecessary and wanton infliction of pain," thus violating the Eighth Amendment's prohibition against cruel and unusual punishment.[11] This litigation arose from a situation in which J.W. Gamble, an inmate of the Texas Department of Corrections, sustained a back injury while working within the correctional facility. Despite receiving treatment for his injury, Gamble endured persistent chest pain and faced punitive action for his refusal to return to work. Gamble's claim that he did not receive adequate medical attention for his condition resulted in a lawsuit alleging a violation of his Eighth Amendment rights.

While the Supreme Court did not determine that Gamble's treatment constituted cruel and unusual punishment, the Court's decision nevertheless established the precedent that prisoners are constitutionally entitled to sufficient medical care. This precedent has since guided the establishment of the "deliberate indifference" standard, which states that in order to demonstrate a violation of the Eighth Amendment, the claimant must prove that prison officials were consciously disregarding their serious medical needs.[11]

The impact of the Estelle v. Gamble decision persists, as it underpins legal challenges brought forward by prisoners alleging insufficient medical care. The ruling has been raised in numerous subsequent cases concerning prisoner rights, shaping the foundational legal discourse on medical care in prisons. However, the definitions of "deliberate indifference" and "serious medical need" remain subject to interpretation and are narrowly defined. Deliberate indifference, for instance, is defined as treatment that is "so grossly incompetent, inadequate, or excessive as to shock the conscience or to be intolerable to fundamental fairness."[11] This definition excludes instances of medical malpractice and negligent care. Furthermore, "serious medical needs" are interpreted as conditions causing extreme pain, posing a threat of death, or resulting in significant degeneration, but do not encompass cases where an inmate experiences symptomatic distress without a formal diagnosis. Consequently, many incarcerated individuals who fall outside these narrowly defined parameters do not benefit from this ruling and continue to receive limited and insufficient health services within correctional facilities.

1.5. Syphilis in Correctional Facilities

With high inmate turnover rates, local jails significantly influence community health. The average weekly inmate turnover rate across all U.S. jails is 42% (July 1, 2020 – June 30, 2021), and inmates typically spend about 33 days in jail before release.[10] Weekly turnover reflects the number of admissions and releases in jail, and a high turnover is an indication of a high number of admissions and releases in relation to the average daily population at the given jail.[10]

The 2019 Sexually Transmitted Disease Surveillance report underscored the role of correctional facilities as a significant reservoir of reported primary and secondary syphilis cases among heterosexual men and women.[12] Surveillance in this area is quite limited. Only a handful of

studies have empirically examined the prevalence of syphilis within the adult population of correctional facilities.[13 – 17] For example, a compelling study conducted in Fresno, California, revealed a significant number of positive syphilis cases within the inmate population at the Fresno County Jail. Of the 195 inmates screened for syphilis over three months, approximately 20.5% (n=40) had a reactive rapid plasma reagin (RPR) test, and 11.8% (n=23) of the positive cases were determined to be new infections.[15] Moreover, within a nine-month duration from April to December, 8.6% (n=611) of 7,144 screened adults produced positive tests, and 3% (n=238) were newly diagnosed cases. Among these newly identified cases, women constituted the highest proportion of new syphilis diagnoses.[15] Among the adult females, 16% (253/1,546) had a positive RPR compared to 6% (358/5,598) RPR reactivity found among male adults. Females also had a higher proportion of newly identified cases, with 7% being new cases compared to 2% of new cases among males.

Despite knowing that syphilis is prevalent in jails and the conditions in jails perpetuate known syphilis risk factors, the literature indicates that universal syphilis screening is not a standard practice in the majority of correctional facilities.[16,17] There is a multitude of reasons for this, including but not limited to, structural impediments to implementing routine screenings, competing priorities in balancing safety and security considerations, and the sustainable funding required to maintain adequate testing and treatment resources. Further complicating the situation are challenges related to medical record access, ensuring inmates receive treatment prior to release, sufficient staffing capacity, and garnering inmate acceptance and willingness to participate in testing procedures.[16]

The Centers for Disease Control and Prevention (CDC) recommends opt-out screening for incarcerated individuals, determined by local and institutional morbidity rates.[7] Opt-out screening has demonstrated higher effectiveness than opt-in screening.[16] Opt-out screening provides testing as an automatic component of healthcare services unless the individual actively declines. Conversely, opt-in screening requires proactive consent from the individual for testing services. The benefits of opt-out screening are evidenced in research indicating higher screening rates. For instance, a study conducted among female detainees in Cook County Jail revealed that opt-out screening led to a four-fold increase in gonorrhea and chlamydia screenings.[18] Opt-out STD screening has also been performed among immigrant detainees across two detention facilities in Texas and Arizona. It was found that opt-out STI testing can help identify STIs among a population often lacking access to adequate healthcare services. The positivity rate for syphilis was 0.8%.[19]

Furthermore, a controlled trial of routine opt-out HIV testing conducted in a women's jail in Connecticut underscored the importance of timing for testing. The study suggested that initial screening should be conducted the evening following the inmate's booking, as individuals might be too exhausted, frustrated, or distraught immediately after their arrest. However, the acceptability of HIV testing decreased after a period of seven days, likely attributable to influences from other inmates and stigmatization associated with HIV testing. [20]

Benzathine Penicillin G is the sole recommended treatment for syphilis, according to the CDC.[7] For primary, secondary, and early latent syphilis, a single injection of penicillin is recommended. In the case of late latent syphilis or latent syphilis of unknown duration, it is advised to

administer three doses over a three-week period. However, when penicillin is not an option due to allergies or shortages, the CDC recommends using doxycycline for two-four weeks, depending upon the stages, as an alternative treatment for non-pregnant individuals.[7]

One challenge correctional facilities face in providing the recommended treatment is the cost involved. Although the average cost of a single injection (2.4 million international units) of off-patent Benzathine Penicillin G is $0.22,[21] it is commercially available for hundreds to thousands of dollars.[22] In an attempt to reduce costs, some jails may opt for second-line treatment. As a result, the high turnover rate in correctional facilities makes inmates less likely to complete their treatment successfully, increasing the chances of community transmission. To address this issue, correctional facilities can utilize the 340B Pricing program, a federal U.S. program administered by the Health Resources and Services Administration (HRSA). This program enables qualifying healthcare organizations to access discounted prices on medications. While correctional facilities alone may not qualify for the program, they can become eligible for discounted prices by entering into a contract with a covered entity, such as a safety net hospital. However, this is not widely used or available to jails across the county.

Public Health Significance

Considering the increasing number of women both incarcerated and diagnosed with syphilis, introducing syphilis screening programs in correctional facilities can be an effective strategy.[11] Such initiatives aim to access and serve this vulnerable demographic by providing essential testing and treatment services. Proper screening within these settings allows for early identification and treatment, thereby disrupting the transmission chain and substantially reducing

syphilis prevalence. The significance of syphilis screening for incarcerated women reaches beyond the prison walls. It holds profound implications for community health, maternal and child well-being, and, indirectly, human capital development. Without appropriate treatment, syphilis in pregnant women can lead to severe health problems for both the mother and the newborn. Implementing effective screening programs within these institutions can prevent such harmful outcomes, protect maternal and child health, and allow more newborns to make it to their first birthday. Untreated syphilis also has far-reaching societal implications beyond immediate health issues. It can considerably deplete human capital as affected individuals might face health complications that diminish their productivity, increase healthcare costs, and hamper social and economic progress. Therefore, establishing thorough syphilis screening and treatment programs in correctional facilities is not only a public health necessity but also a vital investment in human capital.

Chapter 2. Introduction

For decades leading to 2012, congenital syphilis had been declining; however, in the past decade, congenital syphilis has resurged, creating a public health challenge in the United States. While other perinatal infections, like vertical transmission of HIV, are approaching elimination, congenital syphilis has shed light on gaps and disparities within the healthcare infrastructure. Increases in syphilis cases are observed across all populations, disproportionately affecting marginalized and underrepresented groups, emphasizing the urgency for inclusive and tailored testing and treatment strategies to alleviate disparities. In this context, there is a pressing need to extend sexually transmitted infection (STI) services beyond traditional STI clinics. The 2021 STD Surveillance Report underscored the importance of such initiatives, revealing that a significant number of syphilis cases among women were reported from non-STD clinics,

compared to STD clinics. Compared to 1,241 primary and secondary syphilis cases reported among women from STD clinics, 9,943 primary and secondary syphilis cases were reported from non-STD clinics .[1] Recognizing the potential impact of syphilis testing in all healthcare settings, including correctional facilities, we initiated a project to evaluate the operational feasibility and effectiveness of expanding routine, opt-out syphilis screening services within the local jail setting. The primary objective of this project is to identify and treat women and other individuals of childbearing capacity with syphilis, aiming to prevent syphilis transmission in the community and congenital syphilis. Considering the limited scope of research and surveillance in this area, the insights and lessons learned from this demonstration project can be used to guide future implementation of syphilis screening in jails and similar settings to promote routine and systematic testing practices and prevent syphilis and congenital syphilis.

Chapter 3. Methods

3.1. Objective

The primary objective of this demonstration project is to assess the feasibility of implementing routine-opt-out syphilis screening in jail settings as a means to identify and treat syphilis cases. The study aims to examine the facilitators and barriers to uptake at both individual (inmates and staff) and organizational (jails and local health departments) levels.

3.2. Recruitment of Project Sites

Project sites were recruited through a nationwide request for a funding proposal, which was disseminated to all local health departments (LHDs) in the country. The selection criteria for project sites were as follows:

- The LHD should have an established relationship with a local jail.
- The LHD should have reported a minimum of 100 syphilis cases (across all stages) among women aged 15-44 in either the 2019 or 2020 reporting year.
- The LHD should be capable of implementing routine opt-out syphilis screening within 48 hours of induction/booking at the local jail.
- The population of women entering the jail should be sufficient to support a minimum of 2,000 syphilis screening tests during the project period.

Initially, three LHDs applied for funding and were each granted up to $75,000. However, one LHD site discontinued the project at two local jails, but subsequently added a new local jail. Currently, the project supports three sites across three states: Florida, Nevada, and Alabama. The allocated funds were utilized to support personnel, enhance organizational capacity, provide training, procure syphilis tests, treatment, and support associated laboratory processing costs.

3.3. Implementation Protocol

All participating LHDs had an established relationship with local jails and offered routine opt-in syphilis screening, at a minimum. Two of the three jail sites had contracted medical providers, while one site had the local health department overseeing the correctional health system. While the implementation protocol wasn't standardized across all sites, the sites followed similar implementation plans with a few variations in testing strategies and staff responsibilities for overseeing and conducting syphilis tests. Upon booking, inmates are informed about the syphilis testing procedure and its benefits and significance. During this time, medical staff document patient information, including demographics, sexual history, and pregnancy status. Inmates who do not opt out of testing undergo syphilis screening, while those who initially refuse are given an

additional opportunity for testing upon request at a later time. The testing methods employed across the sites included a Rapid Plasma Reagin (RPR) Test and a rapid point-of-care dual HIV/Syphilis test (finger stick) at one site. Women who test positive are interviewed and provided treatment following CDC treatment protocols, and pregnant women are referred to prenatal care. If an inmate is released before testing or treatment, the local health department's Disease Intervention Specialists have protocols in place for follow-up care.

3.4. Data Collection and Analysis

Data collection involved the integration of surveillance data and booking data from the LHDs and jails. Monthly quantitative and qualitative reports were completed by the LHDs. The quantitative reporting tools captured information on the number of women booked, number of women tested, number of women tested within 48 hours, and testing and treatment outcomes. The data were stratified by pregnancy status: pregnant, non-pregnant, and unknown. Age and race/ethnicity were also collected from the sites, but due to data quality, they were not included in this report. The qualitative reports documented progress, challenges, changes to protocols, and support requirements at the sites. The qualitative reports were thematically assessed for buy-in/support from staff and inmates, challenges and how the challenges were addressed, and changes in protocols. To ensure anonymity in reporting and preserve confidentiality, the local health departments, local jails, and contracted medical providers will remain anonymous. In this report, Site A represents Nevada, Site B represents the state of Alabama, and Sites C represents Florida.

The RE-AIM Framework, which stands for Reach, Effectiveness, Adoption, Implementation, and Maintenance, was employed as an evaluation tool to assess the intervention's individual and

organizational/setting level impacts.[23] The Reach component examines the absolute number, proportion, and representativeness of individuals willing to participate in the project. It focuses on assessing the extent to which the intervention was able to engage the target population. Effectiveness evaluates the impact of the intervention, encompassing both positive and negative consequences on all participants involved.[23] It also considers the intervention's impact on the participants' quality of life. This component provides insights into the outcomes and effectiveness of the intervention in achieving its intended goals. Adoption analyzes the participation and support levels within the target population.[23] It assesses the extent to which individuals were willing to initiate and engage with the program. By measuring the proportion of participants who actively adopted the initiative, adoption provides valuable information on the level of buy-in and support within the target population. The implementation component evaluates the fidelity of the intervention to the implementation protocol. It examines the extent to which the intervention adhered to the original implementation plan and whether any deviations or modifications occurred.[23] This dimension sheds light on the implementation process and helps identify areas where changes may have influenced the intervention's outcomes. Lastly, maintenance assesses the sustainability and long-term effects of the intervention.[23] It examines the extent to which the various components of the project will continue to be sustained over time. By assessing the long-term impact and sustainability of the intervention, maintenance provides insights into the intervention's potential for lasting effects and continued benefits. Table 1 illustrates how each dimension of the RE-AIM Framework was measured in this study, providing a comprehensive overview of the specific metrics and indicators used to evaluate the Reach, Effectiveness, Adoption, Implementation, and Maintenance components of the intervention.

Table 1. RE-AIM Evaluation Framework Metric Description

RE-AIM DIMENSION	METRIC	FORMULA/DESCRIPTION
REACH	Patients tested for syphilis *source: Quantitative reports*	(Total patients tested for syphilis / Total patients booked) * 100
EFFECTIVENESS	Patients tested within 48 hours *Source: Quantitative reports*	(Total patients tested within 2 days of booking date / Total patients tested) * 100
	Reactive test among patients tested *Source: Quantitative reports*	(Total patients with reactive tests /Total patients tested)*100
	New syphilis cases identified among patients who had a reactive test *Source: Quantitative reports*	(Total patients with reactive tests later determined to be new cases / Total patients with a reactive test) * 100
	New syphilis cases identified among patients booked *Source: Quantitative reports*	(Total patients with reactive syphilis results later determined to be new cases / Total patients with booked) * 100
	New syphilis cases identified among patients tested *Source: Quantitative reports*	(Total patients with reactive tests later determined to be new cases / Total patients tested for syphilis) * 100
	Treatment rate among new cases *Source: Quantitative reports*	(Total of new cases that were treated / Total patients with positive syphilis results later determined to be new cases) * 100
ADOPTION	Integration of routine opt-out syphilis testing at booking *Source: Qualitative reports*	Evaluate if the screening has been incorporated as a standard procedure at intake
	Buy-in and support among staff and inmates *Source: Qualitative reports*	How well did the partners adopt this project? What was the buy-in among staff? What was the acceptance among inmates? Facilitators and barriers?
IMPLEMENTATION	Modifications made from the implementation plan *Source: Qualitative reports*	How much did the implementation stage deviate from the original implementation plan? Facilitators and barriers?
MAINTENANCE	Due to the project being in its early phase, maintenance couldn't be evaluated at the time.	

Chapter 4. Results

Analysis was conducted among three local jails. All project areas started at different periods, making their reporting period different, so during the time of analysis, adequate comparisons couldn't be made.

4.1. Reach

Reach was measured by assessing the proportion of women booked who received syphilis testing. Among two sites with sufficient data on booking and testing status, 15.5% (n=344) of women booked (N=2,216) were tested. Among pregnant individuals booked, the testing rate was found to be 42.1% (16/38), while for non-pregnant individuals, it was 32.7% (278/850). The testing rate for individuals with unknown pregnancy status was 3.7% (50/1,328). Site A had an overall testing rate of 21.7% (273/1,253). Among booked individuals, the testing reach ranged from 5.0% (46/924) for those with an unknown pregnancy status to 69.84% (213/305) for not pregnant individuals. Among pregnant women who were booked, 58.3% (14/24) received testing. At Site B, 7.4% (71/963) of women booked received syphilis testing. Of the pregnant individuals, 14.3% (2/14) were tested, and 11.9% (65/545) of non-pregnant women booked received testing. As will be detailed in the implementation section below, testing protocols changed over the course of the study. These changes posed limitations on testing and made representativeness harder to determine. In addition, at the time, age and race/ethnicity data weren't finalized for further analysis.

4.2. Effectiveness

The percentage of patients who received testing and were tested within 48 hours of booking was found to be 56.6% (222/392). More specifically, within each stratification, the rate of testing

within 48 hours was 64.7% (11/17) for pregnant individuals, 53.9% (175/325) for non-pregnant individuals, and 72.0% (36/50) for individuals with unknown pregnancy status (Table 2).

Among pregnant individuals who received a test, 5.8% (1/17) screened positive for syphilis, while for non-pregnant and unknown pregnancy status individuals, 8.0% screened positive.

Among all reactive tests, we calculated that 19.4% (6/31) represented new syphilis cases. New cases were only identified among non-pregnant individuals. Among non-pregnant women who screen positive, 23.1% (6/26) were new syphilis cases. Half of the new cases received treatment. Notably, 100% of the reactive tests at Site C were determined to be new cases. Further breakdown by sites can be found in Tables 3-5.

4.3. Adoption

4.3.1. Staff Buy-in

During the initiation phase, the project garnered robust support and buy-in from all personnel at the local health departments, the local jails, and the contracted medical providers. Nevertheless, as the project advanced, the departure of essential personnel, considered as project champions, from the County Sheriff's Office and the Medical Contractor, introduced potential disruptions to the implementation of the project. A notable example of this was observed at Site A, where the Director of Nursing (DON) and Captain of Detention Services, who played pivotal roles in the integration of routine opt-out syphilis screening into the jail's intake process, had left their positions. Consequently, buy-in from the administrative staff was lost, and this resulted in a lack of adequate education and training for other staff members, compromising their ability to

effectively inform inmates about the purpose and benefits of the screening process. To address change in leadership and increase participation and willingness among staff who worked in the jails, the local health departments provided training to orient new staff and ensure they knew the project benefits, their responsibilities, and protocols. Along with the limited interest, there were challenges in staffing capacity. Sites reported needing more staff to conduct testing. Staffing capacity was limited due to split time between other priorities and the unwillingness of the contracted provider to delegate staff to administer testing as opposed to solely relying on the health department.

4.3.2. Staff Concerns

Staff concerns surrounding safety, privacy, and time constraints significantly influenced their willingness to participate in the project. Some staff members expressed hesitations about the feasibility of conducting screenings during intake, which could be chaotic at times, or among inmates who posed safety risks due to the presence of needles. Time constraints were also a prominent issue, as the intake process required numerous forms to be filled out (e.g., client form, laboratory requisition, lab log, release of information). Since this was an additional activity, medical contractor staff members felt that they were not adequately compensated for these additional efforts.

4.3.3 Inmate Buy-in

Compared to the number of women booked, a high number of women did not receive testing for several reasons. First, during the intake process, many inmates were under the influence of substances or experiencing emotional distress following their arrest, rendering them unwilling to

sign or accept any forms during the initial hours of booking. This emotional state compromised their capacity to make informed decisions regarding participation in the screening process.

Secondly, inmates with a history of intravenous drug use encountered difficulties during the blood-drawing procedure. Repeated drug injections can damage veins, making them less visible and harder to access. Furthermore, despite developing protocols and scripts to inform inmates about syphilis and the benefits of screening, staff's inconsistent adherence to these scripts resulted in instances where inmates refused testing due to inadequate information or being asked to opt-in instead of opt-out. This hesitation to participate subsequently influenced other inmates to follow suit and withhold consent. To help address some of these issues of inmate acceptance, alternative testing methods were explored and utilized. Butterfly needles, a device used to help locate veins, and switching from blood draws to rapid point-of-care tests helped increase reach.

4.4. Implementation

4.4.1. Changes in Testing Protocols

Throughout the course of this demonstration project, several modifications were implemented to address encountered barriers in testing protocols. Challenges arose due to limited engagement and varying priorities among sites with medical contractors responsible for inmate healthcare, leading to difficulties in adhering to the intended opt-out syphilis testing protocol within the desired 48-hour timeframe.

At Site A, incongruities in priorities and perspectives between the medical contract provider at the jail and the LHD posed significant challenges. Initially, the project aimed to conduct syphilis testing within 48 hours of booking. However, resistance from the contracted medical provider to

implement testing at booking resulted in a delay of three days after booking before testing took place. Furthermore, the prescribed protocols for offering opt-out testing were not consistently followed due to insufficient staff engagement, interest, and time. As a result, the testing approach was modified from opt-out to opt-in. To address this, the LHDs initiated efforts to enhance communication between the jails and the health department, offering training to jail staff, including leadership and administrative boards. These training sessions aimed to increase interest, educate staff on the significance of syphilis testing in jails, and address any concerns raised.

Similarly, adjustments in testing protocols were made at Site B. Due to inmate behavior during the intake process and the concern for safety, syphilis testing had to be relocated from the booking area, resulting in an inability to conduct tests within the initially intended 48-hour timeframe. Additionally, at Site B, testing was available only one day, for a few hours, when the Women's Clinic was held, impeding the staff's ability to conduct routine and timely testing.

Changes were also implemented in testing methods to address safety concerns related to needle access by inmates and difficulties encountered when locating veins in women with a history of injection drug use. As a result, sites introduced butterfly needles, a device used to help access veins in a blood draw. The impact of this modification has not been evaluated yet. To further enhance safety and prevent potential needle-related incidents, one jail utilizes rapid point-of-care tests, and the other two are considering implementing this change.

4.4.2. Changes in Treatment Protocols

Adherence to CDC treatment protocols for female inmates testing positive for syphilis was expected. However, qualitative reports revealed inconsistencies in treatment approaches among contracted medical providers at the jail in Site B. A provider was administering a single injection to all patients, regardless of the stage of syphilis. In response, the health department intervened by providing guidance and education, adjusting the contracted medical provider's treatment policies to align with CDC recommendations. During the project period, there was a nationwide shortage of Bicillin L-A®. In response to the shortage, sites ensured access to treatment and prioritized pregnant women whenever necessary.

4.4.3. Data Access and Collection

In order to fulfill the requirements for the quantitative reports, the local health departments encountered challenges in compiling data from various sources, which were not always readily accessible or consistent. This led to delays in monthly reporting. The information related to bookings, testing results, and treatment records is stored in separate systems, and local health departments faced difficulties in accessing jail records due to existing structures and processes implemented to safeguard the confidentiality of inmate data. Moreover, obtaining complete data from contracted medical providers was a challenge. For example, one LHD reported an inability to acquire pregnancy status due to concerns raised by the medical contracted provider regarding confidentiality and privacy. This limited analysis by pregnancy status.

4.5. Maintenance

At the time of the project, the sites were just in their beginning phase, so maintenance couldn’t be adequately evaluated.

Table 2. All Sites Combined - Reach and Effectiveness Calculations, Stratified by Pregnancy Status.

	Metric	Pregnant	Not Pregnant	Unknown	All Pregnancy Statuses
REACH	Percentage of patients tested for syphilis among booked	**42.11%** *(16/38)*	**32.71%** *(270/850)*	**3.77%** *(50/1,328)*	**15.52%** *(344/2,216)*
EFFECTIVENESS	Patients tested within 48 hours	**64.71%** *(11/17)*	**53.85%** *(175/325)*	**72.00%** *(36/50)*	**56.63%** *(222/392)*
	Reactive tests among patients tested	**5.88%** *(1/17)*	**8.00%** *(26/325)*	**8.00%** *(4/50)*	**7.91%** *(31/392))*
	New syphilis cases identified among patients who had a reactive test	**0.00%** *(0/1)*	**23.08%** *(6/26)*	**0.00%** *(0/4)*	**19.35%** *(6/31)*
	New syphilis cases identified among patients booked	**0.00%** *(0/38)*	**0.59%** *(5/850)*	**0.00%** *(0/1,328)*	**0.23%** *(5/2,216)*
	New syphilis cases identified among patients tested	**0.00%** *(0/17)*	**1.85%** *(6/325)*	**0.00%** *(0/50)*	**1.53%** *(6/392)*
	Treatment rate among new cases	N/A	**50.00%** *(3/6)*	N/A	**50.00%** *(3/6)*

Note: Reach data and new cases identified among women booked are not inclusive of one site due to missing information on the number of women booked.

Table 3. Site A - Reach and Effectiveness Calculations, Stratified by Pregnancy Status.

	Metric	Pregnant	Not Pregnant	Unknown	All Pregnancy Statuses
REACH	Percentage of patients tested for syphilis among booked	**58.33%** *(14/24)*	**69.84%** *(213/305)*	**4.98%** *(64/924)*	**21.79%** *(273/1,253)*
EFFECTIVENESS	Patients tested within 48 hours	**71.43%** *(10/14)*	**82.16%** *(175/213)*	**78.26%** *(36/46)*	**80.95%** *(221/273)*
	Reactive tests among patients tested	**7.14%** *(1/14)*	**9.86%** *(21/213)*	**8.70%** *(4/46)*	**9.52%** *(26/273)*
	New syphilis cases identified among patients who had a reactive test	**0.00%** *(0/1)*	**9.52%** *(2/21)*	**0.00%** *(0/4)*	**7.69%** *(2/26)*
	New syphilis cases identified among patients booked	**0.00%** *(0/24)*	**0.66%** *(2/305)*	**0.00%** *(0/924)*	**0.16%** *(2/1,253)*
	New syphilis cases identified among patients tested	**0.00%** *(0/14)*	**0.94%** *(2/213)*	**0.00%** *(0/64)*	**0.73%** *(0/273)*
	Treatment rate among new cases	*N/A*	**50.00%** *(1/2)*	*N/A*	**50.00%** *(1/2)*

Table 4. Site B - Reach and Effectiveness Calculations, Stratified by Pregnancy Status.

	Metric	Pregnant	Not Pregnant	Unknown	All Pregnancy Statuses
REACH	Percentage of patients tested for syphilis among booked	**14.29%** *(2/14)*	**11.93%** *(65/545)*	**0.99%** *(4/404)*	**7.37%** *(71/963)*
EFFECTIVENESS	Patients tested within 48 hours	**0.00%** *(0/2)*	**0.00%** *(0/65)*	**0.00%** *(0/4)*	**0.00%** *(0/71)*
	Reactive tests among patients tested	**0.00%** *(0/2)*	**4.62%** *(3/65)*	**0.00%** *(0/4)*	**4.23%** *(3/71)*
	New syphilis cases identified among patients who had a reactive test	***N/A***	**100.00%** *(3/3)*	***N/A***	**100.00%** *(3/3)*
	New syphilis cases identified among patients booked	**0.00%** *(0/14)*	**0.55%** *(3/545)*	**0.00%** *(0/404)*	**0.31%** *(3/963)*
	New syphilis cases identified among patients tested	**0.00%** *(0/2)*	**4.62%** *(3/65)*	**0.00%** *(0/4)*	**4.23%** *(3/71)*
	Treatment rate among new cases	*N/A*	**33.33%** *(1/3)*	*N/A*	**33.33%** *(1/3)*

Table 5. Site C - Reach and Effectiveness Calculations, Stratified by Pregnancy Status.

	Metric	Pregnant	Not Pregnant	Unknown	All Pregnancy Statuses
REACH	Percentage of patients tested for syphilis among booked	*Unavailable*	*Unavailable*	*Unavailable*	*Unavailable*
EFFECTIVENESS	Patients tested within 48 hours	**100.00%** *(1/1)*	**0.00%** *(0/47)*	*N/A*	**2.08%** *(1/48)*
	Reactive tests among patients tested	**0.00%** *(0/1)*	**4.26%** *(2/47)*	*N/A*	**4.17%** *(2/48)*
	New syphilis cases identified among patients who had a reactive test	*N/A*	**50.00%** *(1/2)*	*N/A*	**50.00%** *(1/2)*
	New syphilis cases identified among patients booked	*Unavailable*	*Unavailable*	*Unavailable*	*Unavailable*
	New syphilis cases identified among patients tested	**0.00%** *(0/1)*	**2.13%** *(1/47)*	*N/A*	**2.08%** *(1/48)*
	Treatment rate among new cases	*N/A*	**100.00%** *(1/1)*	*N/A*	**100.00%** *(1/1)*

Note: Reach and new syphilis cases identified among those booked couldn't be calculated due to no information on the number of women booked.

Chapter 5. Discussion

5.1. Lessons Learned

While the project is still in its initial phase to determine feasibility and effectiveness of expanding routine, opt-out syphilis screening services in the local jail setting to identify and treat women with syphilis, the project has revealed significant findings for future implementation and adoption. Although new cases have been identified, overall reach and effectiveness were suboptimal across the three sites. This highlights a significant gap in identifying and diagnosing

syphilis cases among incarcerated women and emphasizes the urgent need for enhanced testing efforts within correctional facilities.

Ensuring comprehensive syphilis screening at booking for all women in correctional facilities requires a collaborative effort across various levels of staff, including leadership, nurses, correctional officers, LHD staff, administrative personnel, and others. Achieving buy-in and adherence to screening protocols requires the establishment of strong policies and a continuous education and refresher training program for new and current staff members. Such measures would cultivate a culture of prioritizing syphilis testing, facilitate the successful implementation of screening at booking, standardize the language used to offer opt-out screening, and dedicate sufficient time and resources for testing. Moreover, these protocols should be designed to adapt to changing circumstances, such as lockdowns and outbreaks, to maintain the continuity of screening and treatment services.

The support and cooperation of contracted medical providers at the jails are critical in promoting the integration of syphilis screening as part of the routine health screening process during booking. Collaborative efforts between correctional facilities and medical partners can lead to increased resource allocation, expanded access to testing and treatment, and the development of comprehensive healthcare services for incarcerated individuals. The study revealed that approximately half of the inmates overall were tested within 48 hours, partly due to changes in testing protocols. However, it was observed that some inmates may have left before testing could be offered, underscoring the importance of immediate and efficient testing upon booking, ideally within 48 hours. Site A reported a high percentage (80%) of testing within 48 hours, and this can

be explained by agreements between the LHD and medical contractor to adhere to the specified time-frame and education on the importance of prompt testing. Implementing measures to expedite the screening process, such as utilizing rapid point-of-care tests, can help ensure that all eligible inmates at least undergo testing before their release.

Moreover, the challenges observed in drawing blood, indicating the need for alternative options such as butterfly needles or rapid point-of-care fingerstick tests, emphasize the significance of adapting screening methods to suit the unique conditions within correctional facilities. By addressing these logistical challenges, the implementation of syphilis testing can become more feasible and effective.

The variations in testing rates by pregnancy status further underscore the importance of targeted approaches in future implementation. A higher percentage of pregnant women received testing compared to non-pregnant women, suggesting that there might be increased awareness and prioritization of testing because a fetus is involved. Further analysis will need to be done to further investigate differences in subpopulations by pregnancy status.

In addition to screening, successful treatment of people with syphilis is crucial in preventing complications and further transmission. The finding that treatment for newly identified infections was not 100% underscores the need for continued efforts in ensuring treatment completion for all identified cases. Addressing challenges related to treatment, such as early release of inmates, can be accomplished through improved coordination between correctional facilities and LHD/community-based healthcare providers. In addition, jails working with contracted medical

providers should have quality assurance protocols in place to ensure adherence to CDC's treatment guidelines. Although treatment cost was not an issue presented, jails wanting to integrate syphilis testing and treatment services should establish partnerships with covered entities eligible for discounts on medications through the 340B program, making the initiative cost-effective.

Furthermore, the limitations identified in data collection and surveillance highlight the importance of strengthening data management systems within correctional facilities and integrating them with the broader public health surveillance infrastructure. To improve data collection efficiency, jails planning to implement syphilis screening should establish protocols that ensure appropriate personnel has access to databases and streamline the collection of syphilis surveillance data in a centralized location.

5.2. Limitations

While we are able to draw lessons learned thus far, this analysis of the project is subject to several notable limitations. First, the analysis was conducted during the initial stages of the project, when the sites were two, three, and six months into the implementation process, and a significant portion of the first few weeks were dedicated to implementing the testing protocols. As a result, the data obtained during this period might not fully capture the long-term impact of the syphilis testing in jails initiative. A more extended study duration would be beneficial to assess the sustainability and effectiveness of the program over time.

Challenges related to accessing and matching data also posed obstacles to the analysis. Incomplete or missing data were encountered, hindering the ability to make accurate comparisons between the sites, the different demographic groups, such as age, race/ethnicity, and pregnancy status. The absence of such essential data points reduces the ability to identify disparities in testing rates among vulnerable populations and potentially limits the understanding of the program's overall reach and impact on diverse groups.

Chapter 6. Conclusion

Currently, the treatment recommendations state that routine opt-out screening for incarcerated individuals should be determined by local and institutional morbidity rates. CDC's guidelines also recommend screening in geographic areas of high risk for syphilis. Although metrics are not specified for what constitutes as "high," states can utilize the Healthy People 2030 target for decreasing primary and secondary syphilis. Healthy People 2030 proposed that by 2030, the rate of syphilis among women ages 15-44 will decrease to 4.6 per 100,000. Geographic areas should use this rate at a minimum to decide whether or not to introduce syphilis screening at booking. In conclusion, syphilis screening at booking in correctional facilities could have significant public health impact. By fostering collaboration among all staff involved, dedicating time, resources, and space, and securing support from contracted medical providers, correctional institutions can become critical players in the prevention and control of syphilis. The study's findings regarding the challenges and how challenges were addressed offer valuable insights for shaping future policies and interventions to identify new syphilis cases in non-traditional settings and prevent congenital syphilis. Given the alarming prevalence of syphilis and its potential for severe health consequences, it is imperative to establish and enforce syphilis testing as a standard of care for

all individuals entering correctional facilities. By incorporating routine syphilis testing upon entry into correctional facilities, we not only safeguard the health and well-being of incarcerated individuals but also protect the broader community.

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