OBJECTIVE: To describe the number of admissions of pregnant people to U.S. jails and the outcomes of pregnancies that end in custody.

METHODS: We prospectively collected pregnancy data from six U.S. jails, including the five largest jails, on a monthly basis for 12 months. Jails reported de-identified, aggregate numbers of pregnant people admitted, births, preterm births, cesarean deliveries, miscarriages, induced abortions, ectopic pregnancies, and maternal and newborn deaths.

RESULTS: There were 1,622 admissions of pregnant people in 12 months in the selected jails. The highest 1-day count of pregnant people at a single jail was 65. The majority of these admissions involved the release of a pregnant person. Of the 224 pregnancies that ended in jail, 144 (64%) were live births, 41 (18%) were miscarriages, 33 (15%) were induced abortions, and four were ectopic (1.8%). One third of the births were cesarean deliveries and 8% were preterm. There were two stillbirths, one newborn death, and no maternal deaths.

CONCLUSION: About 3% of admissions of females to U.S. jails are of pregnant people; extrapolating study results to national female jail admission rates suggests nearly 55,000 pregnancy admissions in 1 year. It is feasible to track pregnancy statistics about this overlooked group.

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In 2017, there were 113,700 women in jails in the United States, a 6% increase from the prior year.1 Approximately three of four incarcerated females in the United States are of childbearing age, and many of them are mothers to young children.2,3 Up to 80% of women entering jails have been heterosexually active before arrest, and nearly two thirds are not using effective contraception.4,5 Therefore, some people will enter jail pregnant. A 2002 survey of 417 jails conducted by the Bureau of Justice Statistics found that 5% of women reported being pregnant at intake.6 In 2019, we published results from a study of pregnancy outcomes in state and federal prisons. We found that 4% of all newly admitted women were pregnant and that 753 people gave birth in custody, representing more than 90% of all pregnancies that ended in prison.7

Yet we cannot assume similar trends in jails, as jails and prisons are distinct institutions. Unlike prisons, which imprison people who are convicted of felony-level crimes and are serving sentences longer than 1 year, jails typically house people pretrial and people who are sentenced to less than 1 year. The average jail stay in 2017 was 26 days;1 so most people who enter jail pregnant will likely still be pregnant when they are released. A further distinction is that prisons are under state or federal control, whereas jails are under local jurisdictions. Jails are located in the communities where people are arrested. This local geography and the high turnover of jail mean that...
the pregnancy care people receive—or do not receive—in jail is inextricably tied to the care they need when they return to the community.

Data about pregnancy in jails are needed to help ensure that pregnant incarcerated people get appropriate care. When formerly incarcerated women come to hospitals in the community for birth, research shows that perinatal providers have limited knowledge about appropriate care for them. Furthermore, black women are incarcerated at twice the rate of white women, reflecting the structural racism inherent to U.S. incarceration; thus, having data about pregnancies in jails is part of a broader agenda to reduce racial disparities in maternal mortality and other negative outcomes. Before being arrested, many women experience racism, poverty, addiction, abuse, and limited access to health care—structural inequities that increase the risk of adverse pregnancy outcomes.

This study prospectively collected 1 year of pregnancy admissions data and outcomes of pregnancies ending in jail from six county jails across the U.S., including the five largest jails, as a component of our previously reported prison pregnancy study.

METHODS

This study was part of the larger “Pregnancy in Prisons Statistics” project, which collected pregnancy data from state and federal prisons in the United States. Although no comprehensive database of the number of jails exists, it is estimated that there are more than 3,000 to correspond with the more than 3,000 counties in the United States. The large number of U.S. jails creates methodologic challenges involved in collecting data from a systematic and representative sample of these institutions. Given this large number and the uncatalogued locations of jails, we designed the jail portion of our project as a smaller-scope study, with a small number of jails to assess feasibility of such data collection. Between May and December 2016, six jails housing females enrolled in the study.

Because of the intentionally limited sample size of jails, we wanted to have the largest possible number of women represented. Thus, we targeted recruitment on the five largest jails in the country: Los Angeles County (California), Rikers Island (New York), Cook County (Illinois), Harris County (Texas), and Dallas County (Texas). We contacted administrators at each institution and all five of these recruited large jails agreed to participate. In addition, administrators at a small jail, Western Massachusetts Regional Women’s Correctional Center, heard about the study and asked to participate. Because we were interested in feasibility of jails’ data collection, we thought their participation would be helpful to illuminate whether a small jail also could report pregnancy data. Therefore, this jail was also included in the study. These jails together account for about 5% of the 113,700 women in jails in the United States in 2017.

We determined which monthly variables could be collected and the level of detail of the variables based on a 3-month exploratory study (with four prisons and one jail) in 2015. Our final monthly data collection tool was informed by feedback from prison and jail staff who reported data for this exploratory phase. The six study jails then reported the following aggregate, de-identified numbers each month: pregnant people admitted and total pregnant people in custody on the last day of the month; live births and stillbirths, stratified by term (more than 37 weeks of gestation), preterm (24–36 6/7 weeks of gestation), and very early preterm (20–23 6/7 weeks of gestation); preterm and cesarean deliveries; miscarriages; induced abortions; ectopic pregnancies; maternal deaths in custody (during pregnancy or within 6 weeks of the pregnancy ending); and newborn deaths within the first 3 days of life. Although the standard definition of neonatal death is within the first 30 days, because jail systems do not have direct contact with the newborns, it was not feasible for sites to consistently know what happened to the child beyond the time the mother was in the hospital for her postpartum recovery, typically 2–3 days. We asked sites to report whether anyone became newly pregnant while in custody. No specific demographic characteristics about individual women, such as race and age, were gathered. We collected data for 13 months, and the first month was considered a trial period for the pregnancy-tracking system at each site. We then analyzed data for months 2–13, a total of 12 months.

In addition, we asked jails to report baseline characteristics about their institutions, including whether their health care services were accredited by a voluntary accreditation program (by the National Commission on Correctional Health Care, American Correctional Association, or other), and when they administer urine pregnancy tests.

A designated reporter at each site—whose role varied from medical directors, other medical personnel, “gender responsive advocate,” and a detention lieutenant—tracked and reported aggregate, de-identified data at the end of each month. Two participating jails were already collecting some of these data before the study and their tracking systems were provided as examples for other jail sites, so that each jail could adapt a tracking system for their institution. Jails have electronic or paper medical records systems for
care provided on site; these systems incorporate information from outside clinic visits and hospital admissions occurring while people are in custody. Site reporters used these sources for pregnancy information, although we did not personally verify their internal records systems.

We asked jails to report on the women that their medical system recorded as pregnant; we presumed this was based on urine pregnancy testing, protocols which we asked about in the study, but we did not verify with reporters how each pregnancy was determined. Our study team provided guidance and was available to answer questions for site reporters about how to categorize the different subtypes of pregnancy outcomes, such as term or preterm births. However, because every jail has its own protocols and resources for obtaining dating ultrasound scans, we could not verify exactly how the gestational age when someone gave birth was determined; we relied on the systems that each jail had for recording this information in their medical records and other health care–tracking systems. Site reporters could indicate that they did not know the gestational age at delivery, but none reported this as an unknown in their monthly reports.

Study staff reviewed data monthly to assess for discrepancies, for instance, if the number of preterm and term births did not add up to the total number of births in a given month. If we noted any inconsistencies, our study staff contacted site reporters to discuss and resolve these discrepancies. A final year long report was sent to study sites to confirm the accuracy of the data.

Some people in jail will be in custody for the duration of their pregnancies, but many will be released while still pregnant, and some may be re-arrested during that same pregnancy. We asked jails to report the number of admissions of pregnant people each month, recognizing that some individuals might be released and re-arrested in a subsequent month, or even that month. Therefore, our measure of admissions of pregnant people likely does not reflect the number of unique individuals who entered jail pregnant. Our study was designed to track the outcomes of pregnancies that ended while people were in jail, aiming to shed light on their pregnancy care needs. We could not, however, track the outcomes of people who were released from jail while still pregnant.

To calculate a point prevalence of pregnancy, jails reported their overall female census on December 31, 2016, the same date used in the official Bureau of Justice Statistics reports. After the official 13 months reporting period, we determined it would be informative to have an additional point prevalence for seasonal comparison, as well as the proportion of admitted females who were pregnant in December 2016 and April 2017. We therefore re-contacted site reporters for the denominators of admitted females during these months and total female census on April 30, 2017. These additional census data were reported by five of the six jails (all but Dallas County).

We analyzed data for frequencies and other descriptive statistics for admissions of pregnant people and the outcomes of the pregnancies ended in jail. Proportions of each pregnancy outcome were calculated for pregnancies that ended in jail— that is, not including women who were released from jail pregnant or those still pregnant and in jail at the end of the study time period. Because data represent complete counts from all participating jails, we could not calculate confidence intervals (CIs). Larger studies of more jails, based on probability samples, would be able to make formal national estimates with CIs. Results are reported for all jails combined, and also by individual jails by state; results for Dallas County and Harris County jails are reported in aggregate as “Texas jails.” Because of the small number of jails in this study and the variable conditions at each one, we did not conduct any statistical tests of association.

We collected and managed study data using the secure, web-based application REDCap (Research Electronic Data Capture) tools hosted at Johns Hopkins University School of Medicine. The study was approved as nonhuman subjects research by the Institutional Review Board at Johns Hopkins University School of Medicine, and we followed each jail’s system for research approval. Of note, the designation “nonhuman subjects” research was based on the aggregate, de-identified nature of data collection. It is important to acknowledge, however, that each number reported for this study represents a person with a lived experience of being pregnant in custody.

**RESULTS**

Five of the participating jails were large, holding a daily count of 502–1,781 females; the small jail’s female census was 231. Half of the jails had received some form of voluntary health care accreditation (with one obtaining dual accreditation from two organizations); none of these jails contracted health care delivery to a private company. The one jail that did not routinely perform pregnancy testing at intake did so for all females within 2 weeks of their arrival to this jail. One jail had a program in place to release pregnant women with substance use disorders to a community-based treatment program under the Sheriff Department’s supervision (Table 1).
In total, there were 1,622 admissions of pregnant people to these six jails over 12 months, with a range of 2–58 admitted each month (Table 2). At the five jails that reported total female admissions, 84 of 2,654 admitted females (3.2%) in December 2016 and 70 of 2,936 (2.4%) in April 2017 were pregnant when they got to jail, with a range from 1.2% to 4.7% of admissions at individual jails (Tables 2 and 3). The 2016 year-end pregnancy prevalence at all jails in this study was 3.5%; it was 4% on April 30, 2017 (Table 2). The highest number of admissions of pregnant people to a jail in a single month was 50, at L.A. County jail, which also had the highest overall number of pregnant people on the last day of any month, at 65 people. One jail indicated that one woman had a negative pregnancy test at intake that was then positive a few days later, and reported that it was most likely because she was too early to be detected at admission. Otherwise, sites reported that no women became pregnant while already in custody.

Two hundred twenty-four pregnancies ended in jail during the study time period. One hundred forty-four (64%) of these pregnancies ended in live births (Table 3). Of the live births, 12 (8%) were preterm and two were preivable preterm. One third of live births were cesarean deliveries. All but two births occurred in a hospital; both of these in-jail deliveries were reported to be the result of precipitous labor, with jail nurses or emergency medical personnel in attendance. There were 41 miscarriages (18% of pregnancies that ended in jail), with 85% of them being first trimester. Thirty-three induced abortions occurred (15% of pregnancies that ended in jail). There were four ectopic pregnancies and two stillbirths, one of which was a preivable gestation and the other was preterm. There were no maternal deaths, and one newborn death.

If we assume that all 224 of these outcomes were to women who were admitted to jail pregnant during the study period, 1,398 of the 1,622 pregnant people admitted to these six jails over 12 months, with a range of 2–58 admitted each month (Table 2). At the five jails that reported total female admissions, 84 of 2,654 admitted females (3.2%) in December 2016 and 70 of 2,936 (2.4%) in April 2017 were pregnant when they got to jail, with a range from 1.2% to 4.7% of admissions at individual jails (Tables 2 and 3). The 2016 year-end pregnancy prevalence at all jails in this study was 3.5%; it was 4% on April 30, 2017 (Table 2). The highest number of admissions of pregnant people to a jail in a single month was 50, at L.A. County jail, which also had the highest overall number of pregnant people on the last day of any month, at 65 people. One jail indicated that one woman had a negative pregnancy test at intake that was then positive a few days later, and reported that it was most likely because she was too early to be detected at admission. Otherwise, sites reported that no women became pregnant while already in custody.

Table 2. Pregnancy Prevalence and Admissions of Pregnant People in U.S. Jails, 2016–2017

<table>
<thead>
<tr>
<th>Prison System</th>
<th>December 31, 2016</th>
<th>April 30, 2017</th>
<th>Total No. of Admissions of Pregnant Females, 12 mo</th>
<th>Admitted Females Who Were Pregnant</th>
<th>No. of Pregnant Females, on the Last Day of the Month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Female Census</td>
<td>Pregnancy Prevalence (% of All Females)</td>
<td>Total Female Census</td>
<td>Pregnancy Prevalence (% of All Females)</td>
<td>12 mo</td>
</tr>
<tr>
<td>Cook County</td>
<td>502</td>
<td>14 (2.8)</td>
<td>519</td>
<td>28 (5.2)</td>
<td>265</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1,781</td>
<td>54 (3.0)</td>
<td>1,963</td>
<td>60 (3.1)</td>
<td>445</td>
</tr>
<tr>
<td>Rikers Island</td>
<td>545</td>
<td>6 (1.1)</td>
<td>608</td>
<td>6 (1.0)</td>
<td>117</td>
</tr>
<tr>
<td>Texas jails</td>
<td>1,851</td>
<td>87 (4.7)</td>
<td>1,119*</td>
<td>61 (5.5*)</td>
<td>742</td>
</tr>
<tr>
<td>Western</td>
<td>231</td>
<td>11 (4.8)</td>
<td>258</td>
<td>5 (1.9)</td>
<td>53</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4,910</td>
<td>172 (3.5)</td>
<td>4,487</td>
<td>160 (3.6)</td>
<td>1,622</td>
</tr>
</tbody>
</table>

Data are n, n (%), or median (range).

Numbers and percentages are total counts (not samples) in the jails included in this study.

* Represents only one of the two Texas jails.
admissions (86%) resulted in a pregnant person being released while pregnant. It is possible that some of the pregnancies that ended in custody were to women who were already in jail continuously since the start of the study and therefore would not have been counted as admissions. This would translate to an even higher proportion of admissions resulting in pregnant people getting released.

DISCUSSION

In this study of six jails, 3% of women were pregnant at admission. If these jails are representative of all U.S. jails, based on the more than 1.7 million annual admissions of females to jail,16 we estimate that there are nearly 55,000 admissions of pregnant people each year. Although some of those admissions may be of the same people, this is a substantial number of times that jails need to provide comprehensive and urgent pregnancy care. The majority of admissions of pregnant people result in people getting released while still pregnant. Community providers should be aware that pregnant patients may have experienced incarceration; in turn, continuity of records from jail is essential for these patients.

The jail pregnancy admission incidence of 3% is similar to U.S. general population estimates,17 though slightly lower than the 5% jail estimate from 200220; one reason for this difference could be that the 2002 statistic was based on incarcerated people’s self-reports of pregnancy, whereas our study elicited clinically verified pregnancies. Our data may slightly underestimate incidence of pregnancy at admission because some jails do not screen for pregnancy immediately, and some individuals may decline or may be released before screening. A national study is warranted to more fully assess jail pregnancy frequencies and to evaluate the effect of exposure to jail on pregnancy outcomes; our study shows that it is feasible for jails to track such data.

The 8% jail preterm birth rate is slightly lower than the 2016 U.S. national estimate of 9.9%.18 However, preterm birth rates ranged from 0 to 20% across the jails, with at least two jails reporting rates that were double the national rate. These patterns suggest that the context of the individual jail system and preincarceration conditions may play a role in the variable preterm birth rates. Rates of cesarean births and ectopic pregnancies among jailed women were also similar to national estimates.18 Approximately 15% of clinically recognized pregnancies end in miscarriage,19 similar to the 18% at these jails, which included six second-trimester losses. Nationally, 18% of pregnancies end in induced abortion20; our study’s induced abortion ratio is only slightly lower than this at 15%.

There were more admissions of pregnant people to these six jails than to 22 state prisons and all federal prisons examined in our prior study (1,622 vs 1,396).7 Conversely, there were more births in prisons in one year (753) than in the six jails (144). This difference likely relates to the fact that people are in prison longer than in jail, with an average prison sentence length of 2.6 years compared with average jail stay of 26 days.1,21 That at least hundreds of incarcerated people give birth, have miscarriages, or induced abortions each year should be examined within the complexities of pregnancy, birth, and postpartum care provided in custody, including the medically unsafe practice of

<table>
<thead>
<tr>
<th>Jail</th>
<th>Total Female Census, December 31, 2016</th>
<th>Total No. of Pregnancies That Ended in Custody*</th>
<th>Total Live Births (% of Known Outcomes)</th>
<th>Preterm Births (% of Live Births)</th>
<th>Cesarean Deliveries (% of Live Births)</th>
<th>Total Miscarriages (% of Pregnancies That Ended in Custody)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook County</td>
<td>502</td>
<td>40</td>
<td>16 (40)</td>
<td>0</td>
<td>3 (19)</td>
<td>10 (25)</td>
</tr>
<tr>
<td>Los Angeles County</td>
<td>1,781</td>
<td>68</td>
<td>38 (56)</td>
<td>5 (16)</td>
<td>13 (34)</td>
<td>11 (16)</td>
</tr>
<tr>
<td>Rikers Island</td>
<td>545</td>
<td>10</td>
<td>5 (50)</td>
<td>1 (20)</td>
<td>4 (80)</td>
<td>2 (20)</td>
</tr>
<tr>
<td>Texas jails</td>
<td>1,851</td>
<td>97</td>
<td>80 (82)</td>
<td>5 (8)</td>
<td>24 (30)</td>
<td>15 (15)</td>
</tr>
<tr>
<td>Western Massachusetts</td>
<td>231</td>
<td>9</td>
<td>5 (56)</td>
<td>1 (20)</td>
<td>2 (40)</td>
<td>3 (33)</td>
</tr>
<tr>
<td>Total, jails</td>
<td>4,910</td>
<td>224</td>
<td>144 (64)</td>
<td>12 (8.3)</td>
<td>46 (32)</td>
<td>41 (18)</td>
</tr>
</tbody>
</table>

Data are n or n (%). Numbers and percentages are total counts (not samples) in the jails included in this study. * Includes pregnancies that ended in jail by live birth, miscarriage, induced abortion, stillbirth, or ectopic pregnancy. Stillbirths and ectopic pregnancy numbers are reported in text.

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shackling women in labor. Additionally, the majority of women in jail have been adversely affected by a number of social and structural determinants of health, such as limited access to medical care in the community, poverty, unstable housing, and exposure to institutionalized racism. These conditions overlap with the high prevalence of histories of trauma, mental illness, and substance use disorders among incarcerated women. Caring for jailed people’s pregnancies, then, also requires tending to these complex, intersecting health issues.

Health care service delivery in jails is based on policies and protocols determined by local administrators. Although the Supreme Court has ruled that jails are constitutionally required to provide health care, that ruling included no mandatory standards, oversight, or requirements for data reporting. The American College of Obstetricians and Gynecologists provides recommendations for pregnancy care in custody, and voluntary accreditation programs exist. Still, the lack of mandatory standards and oversight leads to variability from jail to jail, even within the same state.

Our study has several shortcomings. We could not assess gestational age at entry, yet variations in gestational age could correlate to study outcomes. Selection bias may also influence study results, as jails that chose to participate may already be more attuned to the needs of pregnant incarcerated people. All but one of the study sites were large, urban jails that generally have greater health care resources, and outcomes might be different for jails with the least amount of resources. Finally, we could not collect individual-level data on race, racism exposure, socioeconomic status, preincarceration health, or pregnancy history, all factors that influence jail pregnancy outcomes.

The jails not included in this study vary not only by geography and female population size, but likely also by health policies, such as pregnancy testing protocols and, potentially, comprehensiveness of prenatal care. Additionally, other local or state-wide policies may influence how many pregnant people are incarcerated, such as policing practices sentences for drug-related charges.

These data are a critical first step in understanding the complex and interconnected needs of an overlooked group. This study makes it clear that larger and more in-depth studies of pregnant people in jail and on release from jail are needed—first to provide estimates at a larger and more diverse sample of jails; second, to give a richer and more detailed understanding of the pregnancy experiences of these people; third, to assess the effect of jail exposure on pregnancies that end either in the community or in jail; and fourth, to help jail health care providers and administrators optimize pregnancy care when pregnant people are in their custody.

Our study data should be viewed through the lens of the structural oppressions that adversely shape incarcerated women’s lives. Jails must be understood not as institutions isolated from society, but as ones that are located within communities. There is constant flux between jails and their surrounding communities, with people being arrested and released at frequent and often unpredictable intervals. Community health systems are therefore connected to jail health systems, because community providers care for people before incarceration and when people return to their communities. The pregnancy care that people do or do not receive in custody will affect them and, for those who give birth, their children, well after release. Identifying pregnancy outcomes among people in jail is, then, an essential part of broader strategies to address maternal health inequities.

REFERENCES


PEER REVIEW HISTORY
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Transparency in Peer Review
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• Manuscripts submitted on or after June 1, 2018, and published include the revision letter uploaded as supplemental digital content to the article. The revision letter includes comments from all reviewers and the Editors. Reviewer comments will remain anonymous (unless the reviewer discloses his or her identity). If the author opts in, we will also include his or her point-by-point response to the revision letter.