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Mental health, chronic and infectious conditions among pregnant persons in US state prisons and local jails 2016–2017

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Abstract

Background: Pregnant individuals in incarcerated settings have unique healthcare needs. Rates of mental health, infectious diseases, and chronic disease are higher among nonpregnant incarcerated women compared with those who are not, but the prevalence of these conditions among pregnant people in custody has not been documented.

Objectives: The objective of this study is to describe the prevalence of metabolic, infectious, and mental health conditions in pregnant people to identify the medical needs of high-risk pregnancies in US state prisons and local jails.

Study Design: This was a prospective epidemiologic surveillance of a convenience sample of state prisons ($n=20$) and local jails ($n=3$).

Methods: We used purposive and snowball sampling to recruit a national sample of prisons and jails of a range of sizes and geographies. Reporters submitted to our study database monthly data on selected pregnancy comorbidities for 6 months between 2016 and 2017. Screening, diagnosis, and tracking of these conditions are derived from each facility's medical record and health care delivery systems.

Results: Of the 445 newly admitted pregnant people in prisons and 243 in jails, the most prevalent conditions were mental health conditions and hepatitis C. Specifically, 34.1% ($n=152$) in prison and 23.5% ($n=57$) in jail had a substance use disorder, and 27.4% ($n=122$) of those in prison and 17.7% ($n=43$) in jail had a psychiatric diagnosis. Finally, 20.2% ($n=91$) in prison and 6.6% ($n=16$) in jail had hepatitis C.

Conclusions: This study demonstrates that chronic medical and mental health conditions are prevalent among pregnant people in US prisons and jails. However, significant variability in the reported number of cases of these conditions from state to state and between facility types implies a lack of or inadequate screening practices. These data indicate the need for comprehensive screening and appropriate care for the complex needs of pregnant incarcerated people.

Plain Language Summary

Health care conditions among pregnant persons in US state prisons and local jails 2016–2017

Background: Pregnant individuals in incarcerated settings have unique health care needs. Rates of mental health, infectious diseases, and chronic disease are higher among nonpregnant incarcerated women compared with those who are not, but the prevalence of these conditions among pregnant people in custody has not been documented.

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Objectives: The objective of this study is to describe the prevalence of these conditions in pregnant people to identify the medical needs of high-risk pregnancies in US state prisons and local jails.

Study Design: The study involved ongoing systematic data collection, analysis and interpretation of pregnancy data from a convenience sample of state prisons (n = 20) and local jails (n = 3).

Methods: We intentionally recruited a national sample of prisons and jails of a range of sizes and geographies that house pregnant individuals. Some study facilities were referred from others. Reporters submitted to our study database monthly data on selected pregnancy comorbidities for 6 months between 2016 and 2017. Screening, diagnosis, and tracking of these conditions derived from each facility's medical record and health care delivery systems.

Results: Of the 445 newly admitted pregnant people in prisons and 243 in jails, the most prevalent conditions were mental health conditions and hepatitis C. Specifically, 34.1% (n = 152) in prison and 23.5% (n = 57) in jail had a substance use disorder and 27.4% (n = 122) of those in prison and 17.7% (n = 43) in jail had a psychiatric diagnosis. Finally, 20.2% (n = 91) in prison and 6.6% (n = 16) in jail had hepatitis C.

Conclusions: This study demonstrates that chronic medical and mental health conditions are prevalent among pregnant people in US prisons and jails. However, significant variability in the reported number of cases of these conditions from state to state and between facility types implies a lack of or inadequate screening practices. These data indicate the need for comprehensive screening and appropriate care for the complex needs of pregnant incarcerated people.

Keywords

chronic disease and incarceration, correctional health care, infectious disease and incarceration, mental health and incarceration, pregnancy and incarceration, reproductive health

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Introduction

In 2020, 24 maternal deaths occurred for every 100,000 live births in the United States (Table 1); yet despite having the highest per capita spending for health care costs, the US maternal death rate is over three times that of other top 10 high-income countries.¹ These disparities are more severe for Black pregnant women (55 deaths per 100,000 live births), who are almost three times more likely to die from pregnancy-related complications compared with White pregnant people (19 deaths per 100,000 live births).¹ While pregnancy-related deaths from infection, hemorrhage, and hypertensive disorders of pregnancy have declined since 1990, deaths due to other cardiovascular and chronic medical conditions have simultaneously increased.² One in five US women of reproductive age reported having two or more chronic conditions such as obesity, diabetes, and heart disease,¹ placing them at higher risk of complications during or after pregnancy.

In addition to the rise of US maternal mortality, there has been a simultaneous and racially disproportionate rise in the incarceration of females, most of whom are of childbearing age.³ Based on data from the Pregnancy in Prisons Statistics (PIPS) study, between 2016 and 2017, 4% of females newly admitted to state prisons and 3% admitted to jails were pregnant.⁴ In total, 753 people gave birth while incarcerated, and in some states, those birthing people experienced higher rates of miscarriage, premature birth, and cesarean section than the general population.⁴ The burden of chronic medical and mental health conditions among incarcerated females is also higher than the general public, with approximately half of incarcerated females having a history of a chronic

medical condition.⁵ However, prevalence approximations may be underestimated, as females entering prison have often had limited access to health care pre-incarceration, resulting in undiagnosed or untreated chronic and infectious disease conditions.⁶ National data of 12 million delivery hospitalizations between 2015 and 2018 demonstrated that deliveries associated with incarceration compared with nonincarcerated had higher absolute rates of mental health conditions (52%), substance use disorders (SUDs) (89%), viral hepatitis (57%), sexually transmitted infections (24%), and tobacco use (66%).⁷ However, there may be inconsistencies with how incarceration codes were utilized leading to uncertainty in estimates.

Rising rates of maternal mortality and female incarceration coupled with the high rate of chronic medical and mental health conditions among incarcerated women raise concerns for increased risks for pregnant, incarcerated individuals. Yet research regarding the complex health profiles and needs of incarcerated pregnant individuals is limited, which may obscure the unique health needs of this highly marginalized population.⁴ Moreover, given the disproportionate rate of incarceration of Black, Indigenous, and Hispanic/Latinx compared with White females, exposure to jail and prison environments may be an important but ignored contributor to inequities in maternal morbidity and mortality. Therefore, using data from the PIPS study—a prospective study that described pregnancy frequencies and outcomes for incarcerated individuals—we conducted a secondary analysis of chronic conditions (mental health, infectious, and cardiometabolic conditions) among pregnant incarcerated people in US prisons and jails. The main objective of this

Table 1. List of abbreviations.

Abbreviation	Meaning of abbreviation
US	United States
PIPS	Pregnancy in Prisons Statistics
SUD	Substance use disorder
HIV	Human immunodeficiency virus
OD	Opioid use disorder
REDCap	Research electronic data capture
ACOG	American College of Obstetricians and Gynecologists

Table 2. Participating state prisons and jails.

Prison systems (<i>n</i> = 20)	AL, AZ, CO, GA, IA, IL, KY, LA, MA, MD, ME, MS, MA, OH, OK, PA, RI, TN, VT, WI
Jails (<i>n</i> = 3)	Cook County Jail (IL), Hampden County (MA), Rikers Island (NY)

study was to describe the frequency of medical and mental health comorbidities among pregnant, and incarcerated individuals at a sample of US prisons and jails.

Materials and methods

Recruitment and design

These data were collected as part of the PIPS project; details of the recruitment and design have been previously described.⁴ Briefly, from 2016 to 2017, a prospective epidemiologic surveillance study of pregnancy frequency and outcomes in a geographically diverse sample of 22 US prisons and 6 jails (including the five largest jails) was conducted. Initially, facilities housing at least 2000 women were targeted for recruitment utilizing data published by the Bureau of Justice Statistics. The sample was then expanded to include facilities housing fewer than 2000 individuals utilizing networks established via the National Institute of Corrections and National Resource Center on Justice Involved Women. Facilities that did not house females were excluded. Participating sites reported aggregate, de-identified pregnancy outcomes monthly; for 12 months, they reported the main pregnancy outcomes, and for 6 months, they reported additional, optional supplemental outcomes related to mental health conditions, metabolic conditions, and infectious diseases. Of the 22 state prisons that participated in the parent study, 20 sites chose to complete the supplemental reporting form, and three of the six jails reported these data (Table 2). Each participating facility utilized its own reporting system, with most using the “problem list” in the patient’s chart to report comorbidities. It should be noted that the process by which each facility sequestered these data was highly variable and dependent on its own internal medical records

system. To ensure data quality, study staff reviewed site data to check for discrepancies which, when identified, were fixed directly by the site reporter. In addition, at the midway point of the study, we interviewed site reporters about their ongoing data collection processes. We did not have direct access to patient charts to validate data entry accuracy; to provide standardization between sites, we provided an orientation guide to each facility’s site reporter that included definitions of diagnoses of interest (Supplemental Appendix A). It should be noted, that in this study, we refer to pregnant people and pregnant women interchangeably because we could not ascertain gender identity.

Data collection

The supplemental reporting included asking how many newly admitted pregnant people had the specified conditions (asked as, for example, “number of newly admitted pregnant women with high blood pressure, for example, preeclampsia, chronic hypertension, and gestational hypertension”) and how many pregnant people on the last day of the month had the specified conditions (asked as, for example, “total number of pregnant women who had high blood pressure, for example, preeclampsia, chronic hypertension, and gestational hypertension on the last day of the month”). The number of new admits is distinct from the number of people at month’s end because it is possible, based on the individual’s length of stay, that the same people could be counted repeatedly in the reported month’s end data.

Prison and jail stays differ in length; jails generally confine individuals before conviction or for sentences <1 year while prisons confine individuals for longer-term sentences, although terms vary by state. We assessed these conditions: high blood pressure, diabetes (gestational or pregestational), psychiatric diagnosis, a new diagnosis of postpartum depression among people who delivered within the prior 3 months; psychiatric medication use, alcohol use (pre-incarceration), SUD, human immunodeficiency virus (HIV), and hepatitis C. SUD was defined as illegal drugs or addiction to prescription painkillers. We previously reported opioid use disorder (OUD) data specifically, and the analysis in this study encompasses any SUD.⁸ Our questions did not distinguish between new diagnoses, prepregnancy diagnoses, or pre-incarceration diagnoses, therefore, could not differentiate conditions of pregnancy, such as gestational diabetes and gestational hypertension from their chronic, pregestational counterparts.

Each site had a designated reporter—ranging in roles from medical professionals to warden—who tracked and reported the information monthly. In addition, the system for tracking diagnoses among pregnant people and screening methods for these conditions were based on the individual site’s medical practices. Reporters submitted data monthly

Table 3. The prevalence of chronic conditions among pregnant people newly admitted to prisons and jails.

Chronic conditions	Prisons	Jails
	n (%)	n (%)
Total number of pregnant people admitted (N)	445	243
Mental health conditions		
Psychiatric diagnosis	122 (27.4)	43 (17.7)
Psychiatric medications	66 (14.8)	13 (5.3)
Alcohol use	15 (3.4)	33 (13.6)
Substance use disorder	152 (34.1)	57 (23.5)
Infectious disease		
HIV	1 (0.2)	4 (1.6)
Hepatitis C	91 (20.2)	16 (6.6)
Metabolic conditions		
High blood pressure	12 (2.7)	10 (4.1)
Diabetes	7 (1.6)	5 (2.1)

either to a secure research electronic data capture (REDCap)⁹ link or had the option to complete electronic or paper documents and return them via email, fax, or mail. Since each prison and jail system collected aggregated data, the demographic characteristics of individuals were not collected.

Statistical analysis

We report each variable as the total number of newly admitted pregnant people with each diagnosis and as a mean and median number of people with each diagnosis at month's end; in the case of postpartum depression, we only report the total number of new diagnoses, not at month's end. We calculated percentages as the frequency of the diagnosis among newly admitted pregnant people. We report the mean and median of all sites combined based on the site-specific monthly means and medians. The subset of sites reporting chronic and infectious disease represented more than 38% of females in state prisons and approximately 2% of females in jails in the United States at the time.^{8,10,11} It is important to acknowledge that each number reported for this study represents a person with a lived experience of being pregnant while in custody.

Results

During the 6-month reporting period, for the sites that chose to complete the supplementary reporting, there were 445 prison admissions of pregnant people and 243 to jails. At the end of the month, the mean number of pregnant people across all prisons was 11.2 (median=9; range=0–46), and across all jails was 13.7 (median=14.4; range=6–22). In total, 222 pregnant people gave birth in prisons, and 12 gave birth in jails.

Mental health conditions were more commonly reported than other chronic medical conditions among newly

admitted pregnant people (Table 3). Of the mental health conditions reported, substance use was the most prevalent in both prisons (34%) and jails (24%), followed by a psychiatric diagnosis (27% and 18%, respectively) and the use of psychiatric medication (15% and 5%, respectively). In addition, the mean number of new admits reported on psychiatric medication (prisons: mean=2.6; jails: mean=3.2) was lower than the number of reported cases with a psychiatric diagnosis (prisons: mean=3.6; jails: mean=5.9; Table 3). During the study period, a total of 635 postpartum people in prisons had delivered a baby (either while in custody or before coming into custody) within the last 3 months; of these, 22 had a postpartum depression diagnosis. In jails, there were 45 postpartum people, and only one had a diagnosis of postpartum depression.

Among newly admitted pregnant people, one case of HIV was reported in prisons, and four cases were reported in jails (Table 3). Hepatitis C was more prevalent among incarcerated pregnant people than HIV, with hepatitis C prevalence notably higher in prison than in jail. More hepatitis C cases were reported at the end of the month (mean=2.3) than on admission. For example, 13 prison sites and 1 jail site reported no hepatitis C cases among newly admitted people but reported cases at month's end, suggesting a diagnosis while in custody. In addition, there was variability in hepatitis C reporting between sites (i.e. one prison reported 27 of 91 total hepatitis C cases among newly admitted pregnant people across all participating prisons).

Metabolic conditions of high blood pressure and diabetes were found in incarcerated pregnant people (Tables 3 and 4). Among those in prisons, the total number of newly admitted pregnant people with some form of high blood pressure or diabetes was 12 and 7, respectively. Of those admitted to jails, 10 had high blood pressure and 5 had diabetes. At month's end, these metabolic conditions were similarly sparse (Table 4).

Discussion

Principal findings

These data show that chronic conditions including mental health, infectious diseases, and metabolic diagnoses were present among pregnant incarcerated people, with mental health conditions being the most prevalent.

Results in the context of what is known

Mental health conditions are also highly prevalent for pregnant people in the community, ranging from 12% to 20%.^{12–14} A 2021 study found that nearly one in nine pregnancy-related deaths had mental health conditions as the underlying cause of death, including suicides and overdoses of unintentional or unknown intent among those with SUD, making mental health conditions the leading underlying cause of preventable pregnancy-related deaths.¹⁵ Pregnant

Table 4. The mean and median number of chronic conditions among pregnant incarcerated people at month's end.

Chronic conditions at month's end	Prisons	Jails
	Mean Median (min–max)	Mean Median (min–max)
Mental health conditions		
Psychiatric diagnosis	3.6 1 (0–38)	5.9 6 (0–14)
Psychiatric medications	2.5 1 (0–27)	3.2 3 (0–7)
Postpartum depression	0.2 0 (0–6)	0.1 0 (0–1)
Alcohol use	0.6 0 (0–8)	3.9 4 (1–9)
Substance use disorder	3.8 1 (0–41)	6.9 6 (1–12)
Infectious disease		
HIV	0.1 0 (0–1)	0 0.3 (0–2)
Hepatitis C	2.4 1 (0–26)	1.4 1 (0–7)
Metabolic conditions		
High blood pressure	0.3 0 (0–3)	0.9 1 (0–3)
Diabetes	0.3 1 (0–2)	0.4 0 (0–2)

incarcerated people are at greater risk of mental health disorders due to the deprived conditions of confinement coupled with dehumanizing conditions of being pregnant and birthing while in custody: inadequate prenatal care, trauma from being shackled in pregnancy and labor, isolation during delivery, the stigma of being pregnant while incarcerated, and lack of mental health support.¹⁶ Moreover, rates of mental health conditions among nonpregnant incarcerated females are as high as 69%.¹⁷

The American College of Obstetricians and Gynecologists (ACOG) recommends the screening of all incarcerated pregnant and postpartum people for mental health disorders.¹⁸ However, to date, there are no national data on screening practices within carceral settings for mental health disorders among pregnant or postpartum people, and data on the prevalence of such mental health conditions are limited. The reasons for this omission include the continued marginalization of and concern for pregnant incarcerated individuals, as evidenced by their exclusion from national maternal health databases and national incarceration databases.¹⁹ A 2021 longitudinal study among 58 pregnant people incarcerated in a Midwestern state prison screened participants throughout pregnancy and postpartum and found that 34% met the criteria for moderate to severe depressive symptoms; depression scores were significantly associated with the length of sentence postdelivery.²⁰ Although our study found that 27% of newly admitted pregnant people to prison had psychiatric diagnoses, direct comparison with other studies may be limited due to variable

definitions and screening methods of mental health conditions. In addition, the lower proportion of psychiatric diagnoses among newly admitted pregnant people in jails (18%) as compared with prisons (27%) may suggest inconsistent screening. Hence, the mental health needs of incarcerated pregnant people may be drastically underestimated and unmet. For incarcerated pregnant people, mental health care may be further exacerbated by inadequate access to mental health providers, especially those with expertise in treating pregnant people and the traumas unique to pregnancy while incarcerated.^{17,21,22} Given that untreated mental illness in pregnancy is associated with increased poor maternal health and long-term adverse child outcomes,²³ further research is needed to address the compounding barriers of mental health care for incarcerated pregnant people to ensure optimal maternal and child health.

Not surprisingly, we found SUD was highly prevalent among pregnant people in prisons and jails. Despite the long-established evidence-based standard of care for OUD in pregnancy, findings from other PIPS analyses have shown one-third of pregnant people with OUD admitted to prisons and jails were withdrawn from treatment or not offered medication for OUD while withdrawing from opioids.⁸ Moreover, incarcerated pregnant people who use drugs face additional barriers such as staff discrimination and discontinuities in care; thus, our findings further emphasize the need for substance use treatment while incarcerated.^{8,24}

In addition, high blood pressure, diabetes, and infectious diseases are associated with adverse health outcomes for pregnant people. Rates of these conditions in the nonincarcerated pregnant population are 1.5%–8% for hypertensive disorders, 3%–7% for diabetes, 3.4 per 1000 for hepatitis C, and less than 1% for HIV;^{25–30} direct comparisons to our study data are methodologically not appropriate, but the comparatively higher prevalence of 20% for hepatitis C in prisons is notable. Prevalence estimates of these conditions among pregnant incarcerated people have previously not been reported. This lack of data may reflect inconsistencies in or the absence of screening. For example, in our study, we observed wide variability in reported HIV and hepatitis C among pregnant incarcerated people, suggesting a difference in screening protocols. Specifically, one site reported 27 of the 91 cases of hepatitis C among newly admitted people in prisons, whereas other states consistently reported zero cases. In addition, from 2011 to 2012, 54% of people incarcerated in state and federal prisons and 6% of those in jails reported being tested for hepatitis C while incarcerated.³¹ The same survey revealed that 71% of people incarcerated in state and federal prisons and 11% of those in jails, respectively, were tested for HIV. Thus, a lack of screening for such conditions may lead to inadequate care for high-risk pregnancies. Data from a 2019 survey of 50 states and the Federal Bureau of Prisons found that the federal system and 22 states do not have guidelines for specialized care for high-risk pregnancies.³²

Clinical implications

Our findings draw attention to the need for comprehensive medical and mental health care for incarcerated pregnant people in addition to comprehensive and mandated screening protocols. If left untreated, there is potential for increased pregnancy-related morbidity and mortality in these settings related to these underlying chronic and infectious conditions. Incarcerated individuals are at increased risk for adverse health outcomes compared with their counterparts in the general population, due to a combination of factors related to upstream structural determinants of health pre-incarceration, higher baseline rates of chronic conditions, and the impact of conditions of confinement.^{33,34} Furthermore, both incarceration and maternal mortality are marked by structural racism, manifesting as significant racial disparities in the rates of both of these phenomena.³⁵ Thus, it is a matter of maternal health equity to understand and address chronic conditions among pregnant incarcerated individuals.

Cardiometabolic, infectious disease, and mental health conditions put pregnant people at a higher risk of adverse obstetrical and other short- and long-term health outcomes. These conditions require specialty care to reduce the risk of morbidity and mortality. Thus, incarcerated people must have access to healthcare providers with the expertise to address these concerns. Community healthcare providers with such expertise should be aware of the prevalence of these conditions among incarcerated pregnant people and consider providing care to this population. In addition, we must recognize the contribution of incarceration as a potential risk factor for maternal morbidity given these conditions. The inadequate existing services in these facilities compounded with exposure to poor nutrition, lack of physical exercise, and stressful environments exasperate these already dangerous conditions.

Research implications

To understand the scope of unacceptably high maternal mortality in the United States, more information must be gathered regarding pregnant incarcerated people. In 2018, the First Step Act called for pregnancy prevalence and outcome data to be collected, but this mandate only applies to the federal prison system, which accounts for only 7% of all incarcerated females.^{3,36} Moreover, the mandate does not require the collection of information about co-existing medical and mental health conditions. Likewise, national maternal health databases do not collect data on the pregnant person's incarceration status.¹⁹ Therefore, data requirements must be intentionally designed to ensure useful data collection to understand the full scope of health needs of incarcerated pregnant people.

Strengths and limitations

There are several limitations to our study that warrant consideration. Given that we could not collect data from every prison and jail in the country, the generalizability of our data may be limited. The prisons and jails included in this study differ not only in geography and population size, but also in their policies, protocols, and resources. We did not assess how the facilities screened for these conditions, and thus, our data may under-represent the actual prevalence of such conditions among this population. Although facilities that chose to participate in the supplemental reporting section may have already been more attuned to the needs of pregnant incarcerated women, leading to a potential selection bias, given the low prevalence of certain conditions, results are likely to underestimate the true underlying prevalence of these chronic conditions. The role of the reporters for each site also differed between facilities, and their knowledge of the diagnoses could further lead to potential errors in data reporting. Unfortunately, we were unable to validate reported diagnoses, but overall expect reported values to be underestimates.

Furthermore, we could not assess if the conditions were gestationally induced or pregestational. Finally, due to the nature of our de-identified and aggregate data, we could not collect individual data on pre-incarceration health, race, ethnicity, socioeconomic status, or other demographic characteristics. Therefore, we could not assess differences across facilities or differences based on demographic characteristics that may be associated with each of the reported outcomes.

Conclusion

Despite these limitations, this study provides the first comprehensive description of chronic conditions among pregnant incarcerated people and calls attention to the unique complex health needs of pregnant people in prisons and jails. To address the growing call to understand and address the intersectional roles of chronic conditions and social determinants of health in maternal mortality, the health of incarcerated pregnant people must not be overlooked. Systematic data collection and standardization in care for this population including screening for medical and mental health comorbidities and postpartum depression are critically needed.

Declarations

Ethics approval and consent to participate

The Johns Hopkins Institutional Review Board (IRB00070902) deemed this study as nonhuman subject research. Leadership at each site gave written permission for participation, and in some cases, we received study approval through their formal internal research processes.

Consent for Publication

Not applicable.

Author contribution(s)

Caitlin A Hendricks: Formal analysis; Writing – original draft; Writing – review & editing.

Karissa M Rajagopal: Formal analysis; Writing – original draft; Writing – review & editing.

Carolyn B Sufrin: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Writing – review & editing.

Camille Kramer: Writing – review & editing.

Monik C Jiménez: Conceptualization; Supervision; Writing – review & editing.

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Competing interests

The author(s) declared the following potential conflicts of interest for the research, authorship, and/or publication of this article: Dr. Sufrin serves in a volunteer capacity on the board of directors for the National Commission on Correctional Health Care as the liaison for the American College of Obstetricians and Gynecologists. Dr Jiménez was supported by the Brigham and Women's Hospital H. Richard Nesson Fellowship. The other authors declare that there is no conflict of interest.

Availability of data and materials

Primary data have been submitted alongside the manuscript.

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Supplemental material

Supplemental material for this article is available online.

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