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Childbearing Among Women Cardiologists

The Interface of Experience, Impact, and the Law

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ABSTRACT

BACKGROUND Maternity leave is highly variable in the United States given the lack of a federal workforce mandate.

OBJECTIVES The purpose of this study was to describe the experiences and impact of childbearing on women cardiologists and their careers, within a legal framework.

METHODS A survey was sent to women cardiologists, asking about their experiences while pregnant and on maternity leave. The incidence of complications and career impacts on the cardiologists was assessed.

RESULTS Of 323 respondents who had been pregnant as a practicing cardiologist, extra service or call before maternity leave was required in 37.2%. Of those who performed extra service or call, 17.5% were placed on bedrest before delivery, compared with 7.4% who did not perform extra service or call ($P = 0.005$). During the year of pregnancy, 41.2% experienced a salary decrease; only 7.4% had their relative value units prorated for time on maternity leave; 23.2% had no paid maternity leave. Self-reported pregnancy complications occurred in 36.5%, those with complications had a 60% greater chance of reporting that pregnancy adversely affected their career, compared with those without complications. Nearly three-fourths (237 respondents) reported experiencing at least one of several troubling practices that are illegal in many circumstances.

CONCLUSIONS Women cardiologists report wide variances in maternity leave in the United States, with many experiencing likely violations of the Family and Medical Leave Act or other statues. Childbearing issues in cardiologists should be addressed to improve the professional and personal lives of women cardiologists and the attractiveness of cardiology to potential trainees. (J Am Coll Cardiol 2022;79:1076–1087) © 2022 by the American College of Cardiology Foundation.

Despite women making up more than one-half of all medical students in the United States and achieving parity in many specialties, the field of cardiovascular medicine has had limited growth in representation of women over the past 2 decades. In 2020, 14.9% of practicing cardiologists identified as women, demonstrating a very slow rate of change from 8.9% in 2006.[1] Although the proportion of women trainees was modestly higher at approximately 25.2% in 2019, the rate of increase has been just 0.3% per year.[2] One factor likely deterring women from choosing cardiology

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as a specialty is the difficulties faced by women cardiologists pertaining to pregnancy and maternity leave.[3] Many women cardiologists delay childbearing because of the high acuity of patients, call demand, workday length, and schedule unpredictability. Similar to all childbearing doctors is the interruption in practice and lack of a national paid family leave policy in the United States, leaving institutions to create a patchwork of policies that are inconsistent across types of practices.[3,4]

A 2018 survey of physician mothers across disciplines demonstrated a need for more support for maternity leave and return to work.[5] Only one-half of the respondents had paid leave through their employer, with most women using sick leave or accrued paid time off.[5]

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Women in cardiology (WIC) are often asked illegal questions about childbearing plans during fellowship and job interviews, and a career for WIC can impact family planning.[3] In addition, WIC have a high incidence of pregnancy complications, compared with other childbearing women.[3] Cardiologists may notify their team of their pregnancy early on for multiple reasons, but this opens up the possibility that extra call and service requirements will be imposed upfront.

In addition to state and local laws, 2 federal laws provide clear protections for pregnant employees: the Family and Medical Leave Act (FMLA)[6] and Title VII of the Civil Rights Act of 1964 (Title VII).[7] The FMLA requires employers with 50 or more employees in a 75-mile radius to provide certain employees with 12 weeks of unpaid, job-protected leave for their or a family member's serious health conditions (including pregnancy) and/or care for infants or newly adopted children. Employees are typically covered if they have worked for an employer for 12 cumulative months, including at least 1,250 hours in the 12 months before leave. In addition to providing job-protected leave, the FMLA prohibits interfering with leave, or penalizing an employee for taking it. Employees at academic institutions are also protected by Title IX of the Education Amendments of 1972, which has been interpreted to require medically necessary maternity leave be provided for a "reasonable period of time."[8]

Title VII is the federal law prohibiting sex discrimination, including pregnancy discrimination, in any term or condition of employment including hiring, firing, and promotion. The law also prohibits discrimination based on motherhood-related sex stereotyping. Under the law, pregnant employees must be treated no worse than nonpregnant employees similar in their ability (or inability) to work, and must be eligible for coverage under disability policies. Although Title VII applies only to workplaces with ≥15 employees, nearly all states have similar laws covering smaller employers, and many have more protective laws.

The purpose of this study was to examine the impact of pregnancy and maternity leave and associated institutional policies/practices on women cardiologists who have completed their training and remain in the workforce. We sought to assess whether and how often the treatment of pregnant and parenting cardiologists contains potential violations of federal law or evidence of gender discrimination.

ABBREVIATIONS AND ACRONYMS

FMLA = Family and Medical Leave Act

RVU = relative value unit

WIC = women in cardiology

METHODS

An invitation to participate in this survey was sent through the American College of Cardiology Women in Cardiology section e-mail listserv. This includes only paying members and is composed of 1,351 members. Women as One also sent the survey to its membership. Only U.S. members were included. The survey (Supplemental Appendix 1) was released on May 11, 2021 and closed on June 11, 2021. There were 341 verified unique respondents, representing 25.2% of the targeted group. A total of 18 cardiologists were excluded from the analysis because they were not pregnant as a practicing cardiologist. There were no incomplete surveys.

The anonymous survey sought to examine the impact of pregnancy and motherhood on women cardiologists in the workplace. There were 16 questions and 2 open sections for comments. The requirement for an Institutional Review Board was waived by the University of Arizona.

DATA ANALYSIS. Descriptive statistics, with frequencies, are reported. Comparison statistics of the categorical data were performed to assess for significant differences using the Pearson chi-square test. Logistic regression was performed to compare associations between variables of interest. All probability values are 2-sided, and P values of <0.05 were considered statistically significant. All analyses were performed using STATA (Special Edition) for MAC version 14.2 (StataCorp).

The attorney co-authors analyzed each free-text entry to determine whether the respondent indicated employer actions that were potentially in violation of the FMLA and/or antidiscrimination laws.

RESULTS

A total of 323 respondents were included in this analysis; 256 (79.3%) made 293 comments on the

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TABLE 1 Responses of Women Who Were Pregnant as a Practicing Cardiologist

Demographics	323
Practice	
Academic	156 (48.3)
Hospital	94 (29.1)
Private practice	71 (22.0)
Self-employed	2 (0.62)
Not practicing cardiology	0 (0)
Duration since pregnant	
<5 y ago	162 (50.2)
5-10 y ago	68 (21.1)
10-20 y ago	59 (18.3)
>20 y ago	34 (10.5)
Pregnancy	323
Timing of notifying chair/chief/team/practice of pregnancy	
1st trimester	120 (37.2)
2nd trimester (early)	139 (43.0)
2nd trimester (mid)	44 (13.6)
2nd trimester (late)	18 (5.6)
3rd trimester	2 (0.6)
Timing of notifying of pregnant state influenced by possible adverse treatment or perception	121 (37.5)
Timing of notifying of pregnant state influenced because of other concerns	174 (53.9)
Extra service or call upfront before maternity leave	120 (37.2)
The effect of pregnancy on RVUs	
Higher	0 (0)
Unchanged	44 (13.6)
Lower	79 (24.5)
Unsure	31 (9.6)
Prorated for maternity Leave	24 (7.4)
Salary not based on RVUs	145 (44.9)
Salary change during pregnancy year(s)	
Lower	133 (41.2)
Unchanged	187 (57.9)
Higher	3 (0.9)
Any pregnancy complication	123 (38.1)
Maternity leave	323
Length of paid maternity leave provided	
1-y paid	2 (0.6)
6-mo paid	3 (0.9)
3-mo paid	62 (19.2)
6-wks paid	74 (22.9)
Time taken unpaid	75 (23.2)
Other	107 (33.1)
Length of maternity leave taken	
1 y	4 (1.2)
6 mo	12 (3.7)
3 mo	158 (48.9)
6 wk-<3 mo	55 (17.0)
<6 wk	46 (22.6)
Other	21 (6.5)
Out-of-office e-mail message	323
In place, and did not check work-related e-mail	129 (39.9)
In place, but still checked e-mail and did patient-related work	66 (20.4)
In place, but still checked e-mail and did other work (unrelated to patient care)	80 (24.8)
Not in place, continued to manage patient issues with my team from home	48 (14.9)

Continued on the next page

survey. Nearly one-half, 146 (48.3%) were working in academic settings when pregnant. Most, 162 (50.2%), pregnancies had occurred <5 years before taking the survey, with only 34 respondents (10.5%) pregnant >20 years ago (Table 1). Overall, 237 (73.4%) women left responses or comments that were concerning for at least 1 behavior(s) that is illegal or potential evidence of illegal actions, as detailed later in this paper.

TIMING OF NOTIFYING WORK OF PREGNANCY. Most notified their chair, chief, or practice of their pregnancy in the late first or early second trimester (120 [37.2%] and 139 [43.0%], respectively) (Table 1). The timing was influenced by the concern of adverse treatment or perception after revealing the pregnancy in 121 (37.5%). The timing was also influenced by other concerns, including high-risk pregnancy/other medical concerns (26.3%), concerns about the business (12.7%), radiation exposure risks (8.9%), and concerns about being seen as less competent or committed (5%).

IMPACT OF PREGNANCY ON SALARY. Among the 164 (55.1%) whose salary was based on relative value units (RVUs), RVUs were never higher during the year of pregnancy, but more than one-half (85 [51.8%]) maintained their RVUs despite their pregnancy. Only 24 (7.4%) had their RVUs prorated for their time on maternity leave. During the year of pregnancy, 187 (57.9%) had no change in their salary; for 3 (0.9%) it was higher, and 133 (41.2%) had a decrease. For most women working in academic settings, salary was unchanged (110 [70.5%]), whereas it was more likely to decrease in private practice/self-employed settings (49 [67.1%]) ($P < 0.001$) (Figure 1). Compared with those for whom the salary was unchanged or higher, those with a decrease in salary had 77% greater odds that the experience as a pregnant cardiologist adversely impacted their career (OR: 1.77; 95% CI: 1.12-2.77; $P = 0.013$) (Figure 2).

LENGTH OF PAID MATERNITY LEAVE AND TIME TAKEN. Paid maternity leave lengths varied: 6 weeks for 74 (22.9%), 3 months for 62 (19.2%), 6 months for 3 (0.9%), 1 year for 2 (0.6%), and other amount for 107 (33.1%). Nonetheless, 75 (23.2%) had no paid leave. Regardless of the amount of paid leave, one-half of cardiologists 155 (48.9%) reported taking 3 months of maternity leave. Neither the availability of paid maternity leave, nor the amount of leave taken (3 months or more compared with those who took <3 months), were significantly associated with

reporting that the experience as a pregnant cardiologist adversely impacted their career (Figure 2).

PREGNANCY COMPLICATIONS. Any pregnancy-related complications occurred in 123 (38.1%). Bedrest was the most commonly reported complication and occurred in 36 (29.3%). In those with pregnancy complications, preterm delivery occurred in 30 (24.4%), and 19 (15.5%) reported preeclampsia, 5 (4.1%) reported preterm-preeclampsia, 23 (18.7%) reported a miscarriage, 3 (2.5%) reported a stillbirth, and 45 (36.6%) reported other complications (Table 1).

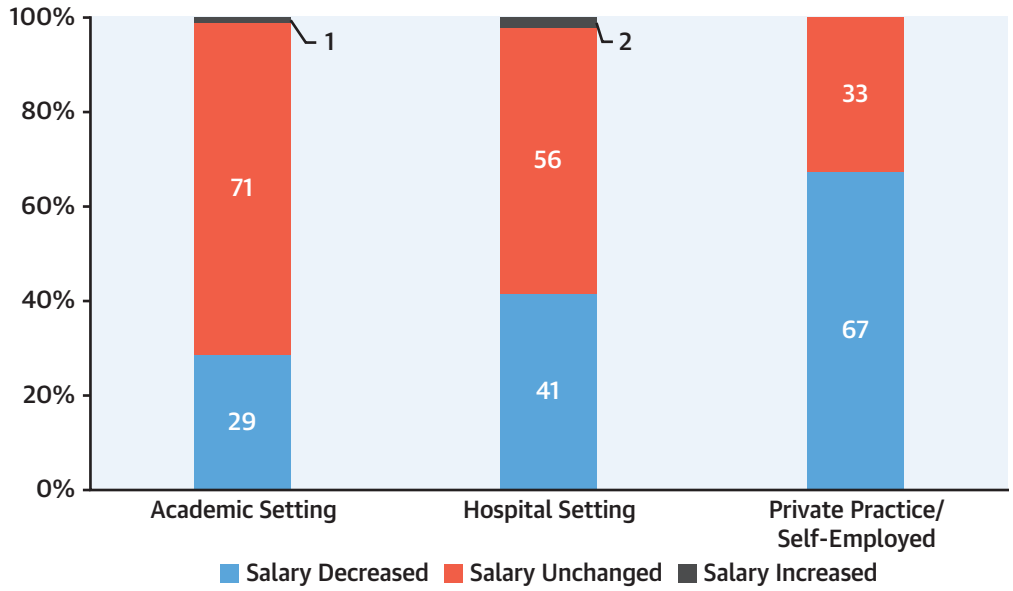
When comparing those who had pregnancy complications with those who did not, there was no significant difference between those who performed extra call or service before their maternity leave (53 [43.1%] vs 67 [33.5%]; $P = 0.083$) (Table 2). Nonetheless, those who performed extra call or service were more likely to report that being pregnant adversely impacted their career as a cardiologist, compared with those who did not have to perform extra call or service (73 [59.3%] vs 92 [46.0%]; OR: 1.71; 95% CI: 1.09-2.70; $P = 0.020$) (Figure 2). Respondents also reported being treated differently while pregnant than men with medical needs, including a cardiologist who was admitted to the hospital on multiple occasions during her pregnancy because she was bleeding, and "constantly heard frustrations about covering my scheduled cases in the cath lab while nobody complains about covering our male colleague that [required medical leave for an injury]." Those who left comments describing behavior that was possibly illegal or evidence of discrimination were more likely to report pregnancy complications, compared with those who did not report such behavior (46 [53.5%] vs 77 [32.4%]; $P < 0.01$).

TABLE 1 Continued

Pregnancy complications	123
Bedrest before delivery	36 (29.3)
Preterm delivery	30 (24.4)
Preeclampsia	19 (15.5)
Preterm-preeclampsia	5 (4.1)
Miscarriage	23 (18.7)
Stillbirth	3 (2.5)
Other	45 (36.6)
Do you think work contributed to pregnancy complication?[a]	
Yes	48 (39.3)
No	41 (33.6)
Unsure	33 (27.1)
Do you think additional service/call contributed to pregnancy complication?[a]	
Yes	26 (21.5)
No	60 (49.6)
Unsure	35 (28.2)

Values are n or n (%). [a]Removed those who checked.
N/A = not applicable.

FIGURE 1 Change in Salary During Year of Pregnancy Based on Practice Setting



Salary change during year of pregnancy based on practice setting: academic vs hospital vs private practice. Salary decreased **(blue)**, salary unchanged **(red)**, salary increased **(gray)**.

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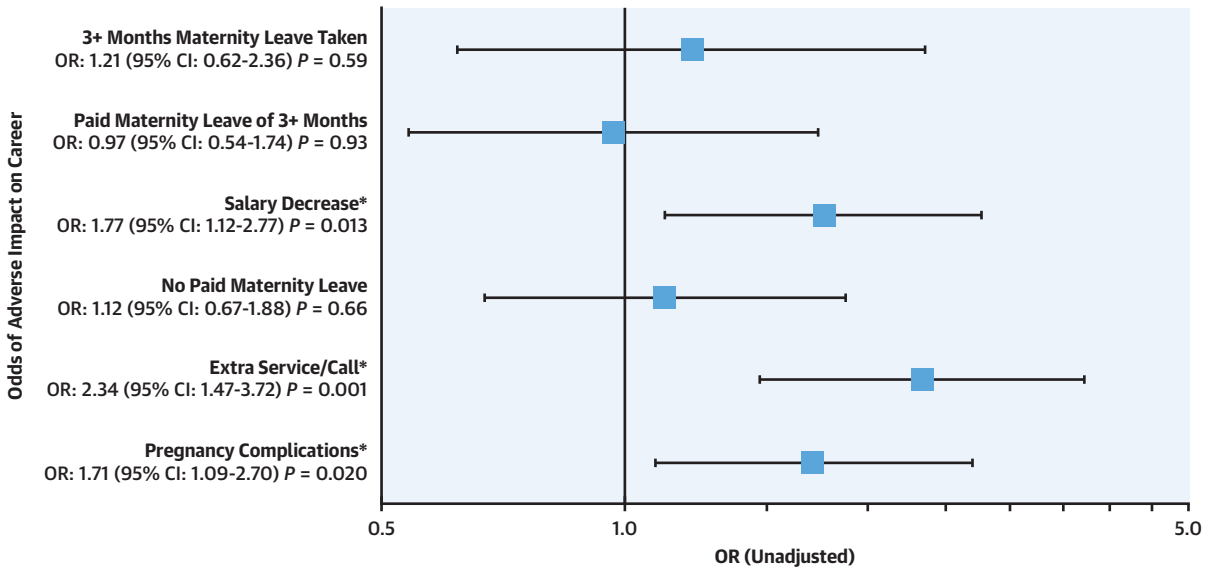
FIGURE 2 Adverse Impact of Pregnancy on Career for WIC



Impact of pregnancy and maternity leave on the careers of WIC. Forest plot of OR on adverse impact on career. OR with 95% CIs and *P* values (unadjusted). *$P < 0.05$. WIC = women in cardiology.

EXTRA SERVICE TIME OR CALL BEFORE MATERNITY LEAVE. Extra service time or call was required for 120 (37.2%) respondents. For those who performed extra service or call before delivery, there was a significantly greater association of being placed on bedrest before delivery compared with those who were not required to perform extra service or call (21 [17.5%] vs 15 [7.4%]; $P = 0.005$) (Table 2) with an OR of requiring bedrest of 2.71 (95% CI: 1.31-5.38; $P = 0.007$). There was no significant association between extra service or call before maternity leave and other individual pregnancy complications (Table 2). Performing extra service or call before leave was associated with a greater likelihood that the experience as a pregnant cardiologist negatively impacted their career (77 [64.2%] vs 88 [43.4%]; $P < 0.001$) with an OR of adversely impacting their career of 2.34 (95% CI: 1.47-3.72; $P < 0.001$) (Figure 2). Those who performed extra service or call were just as likely to experience a drop in salary compared with those who did not perform extra service or call before their maternity leave, with a salary decrease in 43.3% vs 39.9%; salary unchanged in 56.7% vs 58.6%; and a salary increase in 0 vs 1.5% ($P = 0.36$) (Figure 3).

TABLE 2 Impact of Extra Service/Call Before Maternity Leave

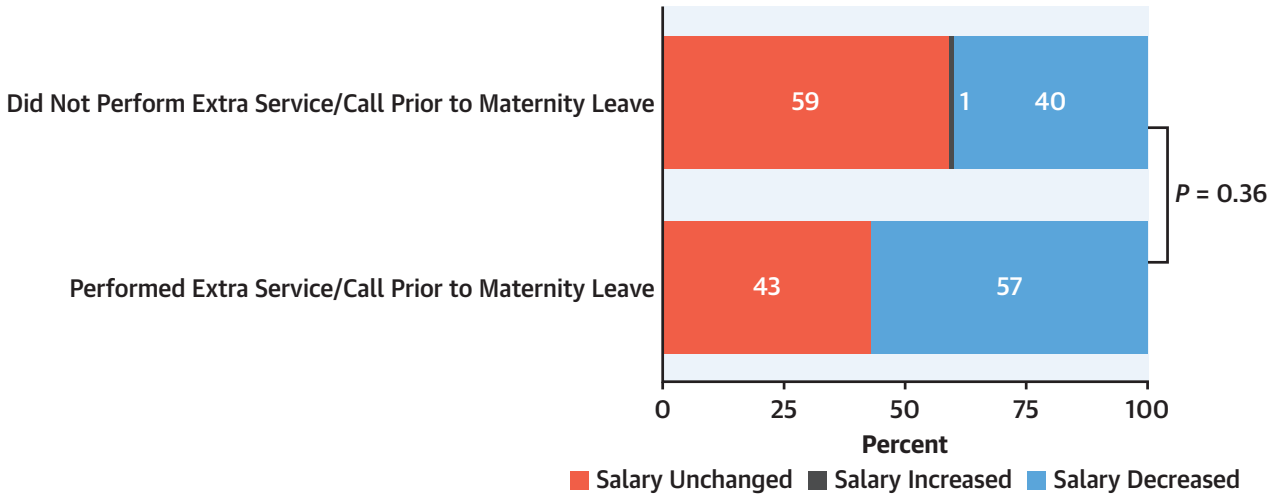
	Extra Service Time/Call Upfront Before Delivery (n = 120)	No Extra Service Time/Call Upfront Before Delivery (n = 203)	*P* Value
Pregnancy complications			
Any pregnancy complication	53 (44.2)	70 (24.5)	0.083
Placed on bedrest before delivery	21 (17.5)	15 (7.4)	0.005
Preterm delivery	9 (7.5)	21 (10.3)	0.40
Preeclampsia	9 (7.5)	10 (4.9)	0.34
Preterm-preeclampsia	1 (0.83)	4 (2.0)	0.42
Miscarriage	10 (8.3)	13 (6.4)	0.52
Stillbirth	2 (1.7)	1 (0.5)	0.29
Other	21 (17.5)	24 (11.8)	0.15
Experience as a pregnant cardiologist adversely impacted career	77 (64.2)	88 (43.4)	<0.001

Values are n (%).

TIME SINCE PREGNANCY. There was no relationship between the impact of pregnancy on salary and years since pregnancy. In addition, the duration of paid maternity leave has not significantly changed. However, the amount of maternity leave taken has changed with time; those who were pregnant in the past 5 years were more likely to take 3 months of maternity leave (89 [54.9%]) than those who had pregnancies more than 20 years ago (11 [32.4%]), irrespective of the amount of paid leave ($P = 0.006$) (Table 3).

PRACTICE SETTING. Paid maternity leave of 3 months or 6 weeks was more likely when working at academic/hospital-based practices compared with

FIGURE 3 Association Between Extra Service/Call Prior to Maternity Leave and Salary



No significant difference in the association of performing extra service or call before maternity leave on salary during the year of pregnancy. Salary unchanged **(red)**, salary increased **(gray)**, salary decreased **(blue)**.

private/self-employed practices (3 months paid leave: 25.0% vs 22.3% vs 2.7%; 6 weeks paid leave: 25.6% vs 23.4% vs 16.4%), whereas unpaid maternity leave was more likely in private/self-employed practices (12.2% vs 21.3% vs 49.3%) (all $P < 0.001$). Extra service or call did not differ by practice type; there was no significant difference in pregnancy complications or reporting that their pregnancy adversely impacted their career based on practice setting (Table 4).

PERFORMING WORK WHILE ON LEAVE. While on maternity leave, 129 (39.9%) posted an "out-of-office" e-mail notice and were not involved in any work. Others reported they had an "out-of-office" e-mail response but continued to manage patients or perform work not related to patients, in 66 (20.4%) and 80 (24.8%), respectively. The remaining 48 (14.9%) did not have an "out-of-office" e-mail response and continued to manage their patients' issues from home while on leave (Table 1). Those who did not perform extra service or call before their maternity leave were more likely to have an "out-of-office" e-mail response set and did not participate in patient care or work-related e-mails while on maternity leave, compared with those who performed extra service or call before their maternity leave (44.8% vs 31.7 %; $P = 0.045$) (Figure 4). Salary changes during year of pregnancy were not significantly different in those who had an "out-of-office" e-mail response and did not work, compared with those who had an "out-of-office" e-mail response but continued to check e-mail and participate in patient care or other work, or those who did not have any e-mail response and continued management of patients from home (Figure 4).

Respondents also reported being contacted to do work during maternity leave, or pressure to return from leave early, a violation of the FMLA for those covered. One commenter stated: "Every day while on maternity leave, I was contacted by my employer as to when I would return so they can open my schedule. I was so harassed."

Although we did not include a specific question about return to work, some respondents volunteered potentially discriminatory scenarios in comments. For example, women reported problems related to breastfeeding: a clinic that "not only doesn't allow time for pumping ('fitted in between patients') but there isn't a reliable private room so I pump in a workspace with other cardiologists and fellows coming in and out."

PREGNANCY IMPACTED CAREERS. More than one-half, 51.1% reported that pregnancy adversely impacted their career. Comments indicated that 42.4% of these WIC (22% of total respondents) experienced external pressures, and even outright discrimination, that negatively impacted their careers. These included experiences with promotions: "My promotion was delayed because I was pregnant (I was literally told this)." "Before I announced my pregnancy, I was going to be program director. After I announced, all of a sudden I was asked to interview for the position." Others reported mistreatment:

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TABLE 3 Changes in Pregnancy and Maternity Leave by Years Since Pregnancy

	Years Since Pregnancy			
	<5 y (n = 162)	5-10 y (n = 68)	10-20 y (n = 59)	>20 y (n = 34)
Practice location				
Academic	71 (43.8)	36 (52.9)	27 (45.8)	22 (64.7)
Hospital	61 (37.7)	21 (30.9)	8 (13.6)	4 (11.8)
Private practice/self-employed	30 (18.5)	11 (16.2)	24 (40.7)	8 (23.5)
Salary change during year of pregnancy				
Decreased	75 (46.3)	27 (39.7)	22 (37.3)	9 (26.5)
Unchanged	85 (52.5)	40 (58.8)	37 (62.7)	25 (73.5)
Increased	2 (1.2)	1 (1.5)	0 (0.0)	0 (0.0)
Amount of paid maternity leave provided				
1 y	2 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)
6 mo	1 (0.6)	1 (1.5)	1 (1.7)	0 (0.0)
3 mo	38 (23.5)	11 (16.2)	10 (17.0)	3 (8.8)
6 wk	29 (17.9)	17 (25.0)	20 (33.9)	8 (23.5)
Unpaid leave	42 (25.9)	11 (16.2)	14 (23.7)	8 (23.5)
Other	50 (30.1)	28 (41.2)	14 (23.7)	15 (44.1)
Amount of maternity leave taken				
1 y	4 (2.5)	0 (0.0)	0 (0.0)	0 (0.0)
6 mo	4 (2.5)	2 (2.9)	4 (6.8)	0 (0.0)
3 mo	89 (54.9)	25 (36.8)	27 (45.8)	11 (32.4)
6 wk	14 (8.6)	10 (14.7)	14 (23.7)	7 (20.6)
Other	51 (31.5)	31 (45.6)	14 (23.7)	16 (47.1)
Extra service/call before maternity leave	61 (37.7)	28 (41.2)	25 (42.4)	6 (17.7)
Any pregnancy complication	52 (32.1)	29 (42.7)	27 (45.8)	15 (44.1)
Did work in any way contribute to your pregnancy complication[a]				
Yes	19 (18.5)	18 (41.9)	9 (19.1)	6 (25.0)
No	60 (58.3)	19 (44.2)	23 (48.9)	11 (45.8)
Unsure	24 (23.3)	6 (13.9)	15 (31.9)	7 (29.2)
Experience as a pregnant cardiologist adversely impacted career	81 (50.0)	38 (55.9)	32 (54.2)	14 (41.2)

Values are n (%). [a]Removed those who checked.
N/A = not applicable.

"During my last pregnancy I felt like I had a target on my back. There was nothing I could do without 'getting in trouble'"; "I quit […] before having another job because of how poorly they treated me during and after my 2nd trimester miscarriage." Still other women reported being fired: "I was fired due to pregnancy."

Commenters reported that pregnancy adversely impacted their careers in different ways. For example, some WIC were forced to forgo opportunities that could have had long-term career benefits: "I was unable to participate in patient care requiring extensive exposure to radiation. This impacted my long-term practice decisions." One woman "had to turn down multiple in-person speaking engagements at conferences."

POTENTIAL LEGAL VIOLATIONS. Many respondents (237 [73.4%]) answered questions or left comments that were concerning for at least 1 behavior(s) that is illegal or potential evidence of illegal actions. This includes respondents who reported the following: having to cover extra service or call time upfront; experiencing a salary decrease despite only taking paid leave; experiencing a salary decrease despite RVUs being unchanged; continuing to work on patient issues while on leave; planning when to reveal the pregnancy because of concerns about adverse treatment; or experiencing adverse impacts on their career due to pregnancy, leave, or negative competence or commitment assumptions related to motherhood (Supplemental Appendix 2). It also includes comments left on the survey, 97 (33.1%) describing behavior that was either clearly illegal or evidence of discrimination. Such comments were made by 86 (26.6%) respondents and included 39.6% of the women who left any comments.

DISCUSSION

To our knowledge, this is the first survey to examine the experiences and policies specific to pregnancy and maternity leave in women cardiologists. Our study demonstrates that three-quarters of cardiologists who have been pregnant while in the profession report experiencing troubling practices that are illegal in many circumstances. We also found a striking lack of consistency in existence and implementation of maternity leave in clinical settings for WIC.

Our findings indicate considerable heterogeneity in the experience of pregnancy and maternity leave among women cardiologists. Most of the respondents were pregnant in the past 5 years, which is consistent with the rising numbers of WIC trainees that are now joining the workforce.[9,10] Those who were pregnant more recently were more likely to take 3 months of maternity leave, regardless of the amount of time provided. Paid maternity leave was more likely in academic or hospital settings, in contrast with private practice or self-employed settings. Salary during the year of pregnancy decreased in more than 40% of respondents despite preservation of RVU-based productivity in most. Before taking maternity leave, 37.5% of the respondents were required to perform extra service or call, and this did not differ based on clinical setting nor did it protect WIC from a drop in compensation. When employers require employees to "pay back" or "pay in advance" the hours not worked during maternity leave, that can violate the FMLA when it is, in effect, denying or interfering with FMLA leave. Title VII is violated when employers treat employees differently on the basis of sex with respect to any term or condition of employment, including

access to leave. This means it would be "doubly illegal" to require pregnant cardiologists to frontload their hours in order to take maternity leave, while not requiring others to "make up" the time they take for medical leave, as indicated in several comments.

In addition to these legal concerns, there are significant health concerns. Performing additional call was significantly associated with being placed on bedrest before delivery. During the vulnerable period of pregnancy, any requirement for additional work on top of already long workdays can increase the chance of threatened abortion or preterm delivery.[11] Occupational hazards, such as radiation, in addition to working conditions, can contribute to worse pregnancy outcomes for WIC, but can be mitigated by appropriate lead protection and monitoring.[12] Providing reasonable accommodations for pregnancy is mandated by law in most states,[13] and by Title VII to the extent accommodations are provided to others in the workplace. Pregnant or postpartum employees who have pregnancy-related disabilities are also entitled to accommodations under the Americans with Disabilities Act and similar state laws.[14] Accommodations available under these laws include personal protective equipment, permission to work remotely, and leave beyond the 12 weeks provided by the FMLA.

Almost 4 in 10 cardiologists in our survey has experienced a pregnancy complication, consistent with our prior findings,[3] and significantly higher than the general population and other medical specialties.[15] In this survey, 29.7% of pregnant cardiologists were placed on bedrest, which is higher than seen in a survey of women urologists, where the rate was 21.2%.[16] This same study estimated total pregnancy complications in urologists at 25.3%, in contrast with 36.5% seen in WIC. To put this in perspective, pregnancy complications in the general population occur in 16.4% of deliveries.[17]

Our data show that the adverse consequences of pregnancy in women cardiologists are numerous, including both physical and professional concerns. Many have a salary decrease during the year of pregnancy. Even in academic medical centers, where persons are salaried and more likely have a preserved income, 29% of cardiologists experienced a salary decrease. For those with salaries based on RVUs, only approximately 7% reported that their RVUs were prorated for the time they were on maternity leave. Just 24.5% saw a decrease in RVUs, and 41.2% had a decrease in salary. In other words, a sizable minority of pregnant cardiologists surveyed were paid less for the same amount of work, likely in violation of Title VII and similar state antidiscrimination laws. To the extent employees are paid less for the same amount of work as retaliation for taking FMLA-protected leave, the practice also violates that law.

TABLE 4 Changes in Pregnancy and Maternity Leave by Practice Setting

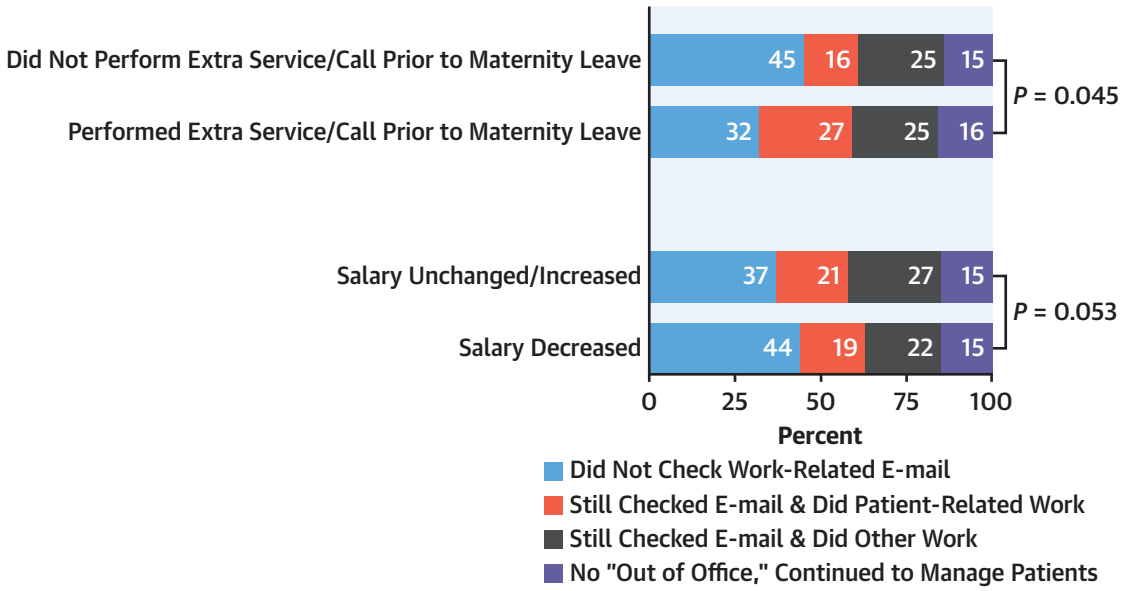
	Practice Setting Impact Service/ Call Schedule			
	Academic (n = 156)	Hospital (n = 94)	Private Practice/ Self-Employed (n = 73)	*P* Value
Amount of paid maternity leave provided				<0.001
1 y	1 (0.6)	1 (1.1)	0 (0.0)	
6 mo	0 (0.0)	3 (3.2)	0 (0.0)	
3 mo	39 (25.0)	21 (22.3)	2 (2.7)	
6 wk	40 (25.6)	22 (23.4)	12 (16.4)	
Unpaid leave	19 (12.2)	20 (21.3)	36 (49.3)	
Other	57 (36.5)	27 (28.7)	23 (31.5)	
Amount of maternity leave taken				0.042
1 y	1 (0.6)	3 (3.1)	0 (0.0)	
6 mo	4 (2.6)	5 (5.3)	1 (1.4)	
3 mo	82 (52.6)	44 (46.8)	26 (35.6)	
6 wk	24 (15.3)	9 (9.6)	12 (16.4)	
Other	45 (28.9)	33 (35.1)	34 (46.6)	
Salary change				<0.001
Decreased	45 (28.9)	39 (41.5)	49 (67.1)	
Unchanged	110 (70.5)	53 (56.4)	24 (32.9)	
Increased	1 (0.6)	2 (2.1)	0 (0.0)	
Extra service/call before maternity leave	63 (40.4)	29 (30.9)	28 (38.4)	0.31
Any pregnancy complication	61 (39.1)	36 (38.3)	26 (35.6)	0.88
Experience as a pregnant cardiologist impact career	82 (52.6)	43 (45.7)	40 (54.8)	0.45

Values are n (%).

Women who were not required to perform extra service or call tended to be those who did not check e-mail while on maternity leave, suggesting greater institutional support and regulatory/legal compliance. In addition, working during maternity leave did not appear to preserve income. Nonetheless, the idea of continuing to work while on maternity leave (whether paid or unpaid) must be addressed within the cardiology community. Women may choose to work to meet professional deadlines, perform certification activities, and so forth; they should be compensated for such work. Regardless, boundaries should be established to ensure that mothers are not pressured to work during leave. This is also a legal issue; the FMLA prohibits employers from interfering with family and medical leave, including contacting someone on maternity leave to ask them to come back early or to conduct work.

Troubling practices that may be illegal were experienced by most respondents. Although many reflect subtle negative assumptions regarding mother's competence, others reflect overtly hostile employer statements, as when one woman reported, "I was told

FIGURE 4 Working During Maternity Leave: Association With Extra Service/Call and Salary



Significant association between performing extra service/call before maternity leave and continuing to perform patient-related work via e-mail during maternity leave, when compared with those who did not perform extra service/call before maternity leave ($P = 0.045$). No significant association between salary changes during year of pregnancy and whether e-mail was checked during maternity leave.

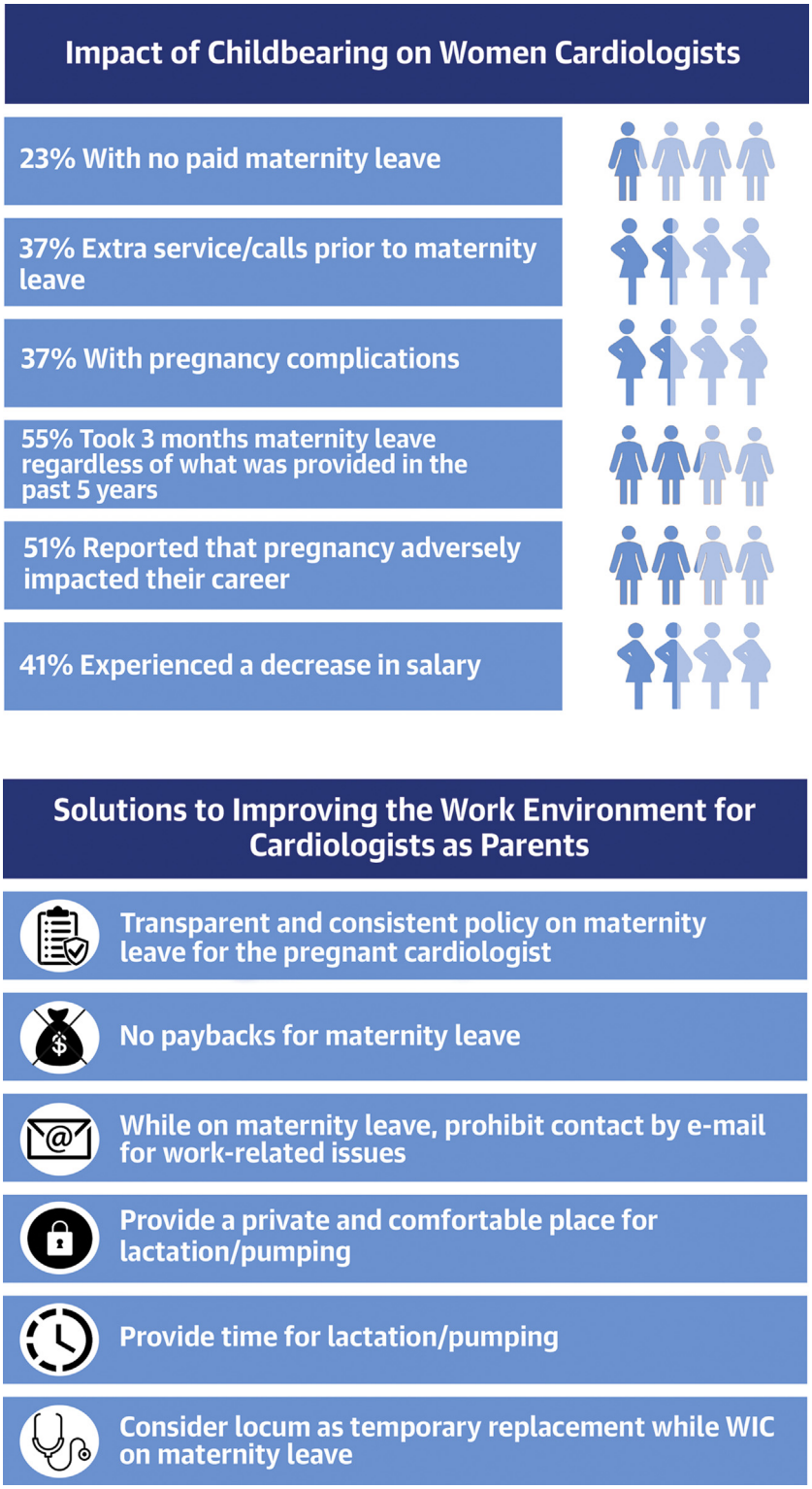
not to have more children." It is likely that some of the behavior reported in survey responses and comments violates not only federal but state laws and local ordinances prohibiting sex discrimination, requiring accommodations, or mandating leave. For example, several cardiologists reported difficulty with basic breastfeeding accommodations at work, despite the fact that most states require employers to provide lactation break time and space.[18]

The survey was not originally designed to investigate the prevalence of pregnancy discrimination, but the comments spontaneously offered by WIC were so widespread that we felt compelled to count them and provide examples. However, it is likely that this is an undercount of the number of WIC who experienced this type of behavior: a recent study found that 65% of U.S. women cardiologists report experiencing any form of discrimination, 95% sex/gender based and 37% based on parental responsibilities.[4] In contrast, the same report found that 23% of men experienced discrimination, 8% sex/gender based and 8% based on parental responsibilities.

Although pregnancy lasts for only a very a small portion of the cardiologist's career, it is clear that issues that occur during pregnancy can have a serious impact on the career of a WIC. Specifically, having a pregnancy complication, performing extra service or call before maternity leave, and having a salary decrease were significantly associated with reporting that their pregnancy negatively impacted their career.

PROPOSED SOLUTIONS. The survey responses and additional comments suggested many behaviors that are illegal or are of significant concern. Although many professions struggle to create environments supportive of pregnancy and child-rearing, the prevalence of illegal behavior in cardiology is quite high, and presents substantial legal risk for employers. The law makes it clear that these are the responsibility of the institution and its leadership to address, not individual childbearing cardiologists. Given the potential liability, hospitals and practices should consider conducting policy reviews and take steps to bring policies and practices in line with their obligations under the FMLA and Title VII (**Central Illustration**). Employers should stop requiring pregnant cardiologists to make up for the time taken off for maternity leave by working additional hours before, during, or after the leave. It is illegal to discriminate against employees because they are pregnant, or because of stereotypes or assumptions about mothers. That means it is illegal to refuse to hire or promote, to delay the promotion, to fire, or otherwise to disadvantage cardiologists because they are pregnant or

CENTRAL ILLUSTRATION **Pregnancy and Women in Cardiology**



Gulati M, et al. J Am Coll Cardiol. 2022;79(11):1076–1087.

The impact of pregnancy on women in cardiology and solutions to improve the working environment for all parents. WIC = women in cardiology.

because they are mothers. It is also illegal to pressure cardiologists not to bear children. It is illegal to require employees covered by the FMLA to work involuntarily during their leave, including expecting them to correspond regularly about patients. It is also illegal to discourage employees entitled to FMLA leave from taking it, or to pressure them to return early. Both for employers covered by the FMLA and those who are not but who employ ≥15 people, Title VII prohibits treating other medical leaves more favorably than maternity leaves. Nearly all states have laws with similar, and often stronger, requirements (Supplemental Appendix 2).

One strategy for managing this shifted approach is for hospitals and clinics to temporarily replace cardiologists on maternity leave with locums or deepen the bench of coverage for clinical work, as is done for other absences. Given the expanding coverage of parental and family medical leaves and awareness of these issues nationally, the need for this is likely to become less of an exception and more the rule. For example, 9 states and Washington, DC now provide paid parental leave, and there is pending legislation in others.[19]

Heightened awareness is needed so cardiologists and their employers understand that it is illegal to discriminate in hiring, firing, promotions, and so forth, based on pregnancy or motherhood. Finally, widespread training is necessary to explain employees' rights with respect to expressing breast milk on the job, including scheduling patients in a way that gives them time to pump, and providing a clean, private place to do so that is not a restroom.

The illegal behaviors reported by women cardiologists likely arise from a culture and climate in which sex discrimination and parental discrimination are widespread. Although adherence to the law is necessary and may help to improve this, the challenges of an adverse culture and climate must be addressed explicitly and directly.

Cardiology has a problem with diversity, as measured by underrepresentation of women, which will persist for more than a century at the current rate of change. Survey comments include experiences related to pregnancy that discouraged women already in cardiology and also document discouragement of those considering entering cardiology. All this makes it difficult to recruit women into cardiology.[20]

STUDY LIMITATIONS. Compared with prior American College of Cardiology surveys in which response rates were 11%,[3] the response to this survey was quite good. Excluding those without a pregnancy, estimated to be 28%,[4] the response rate was closer to 35% of the target population. Admittedly, the target population, self-identified WIC, may not fully capture all birthing people. Although survey respondents are currently located in the United States, another limitation is knowing if the pregnancies and maternity leave occurred in the United States or elsewhere. The data were self-reported, with no ability to verify responses or assess the validity of subjective judgments. Additional limitations include those with multiple pregnancies may have unique experiences with each. We do not have information on marital status or the partner's career, which might have influenced ability to take unpaid leave or the amount taken.

Finally, the legal analysis of survey responses was limited by the information provided by the respondents. Whether a reported behavior was indeed illegal is determined by a complex set of factors outside the scope of the survey. As such, the authors could only report findings that suggest actions that are illegal or potential evidence of illegal behavior in many circumstances. For more information about laws affecting pregnant cardiologists, see the Supplemental Appendix 2.

CONCLUSIONS

Childbearing is difficult for WIC, with more than double the rate of gestational complications of the U.S. population, frequent income loss out of proportion with reduced productivity, and, for nearly one-half, an adverse impact on their career. Nearly three-fourths of women cardiologists who have experienced pregnancy report experiencing troubling practices that are illegal in many circumstances, including requiring extra work before delivery, requiring work during leave, and inadequate accommodation for breastfeeding once returning to work. Because these employer actions were associated with negative outcomes, improving policies and practices related to pregnancy and motherhood will not only improve compliance with the law but also the professional lives of women cardiologists, their health and well-being and that of their infants, and the ability to recruit and retain women in the cardiology workforce.

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PERSPECTIVES

COMPETENCY IN SYSTEMS-BASED PRACTICE: Many women cardiologists confront violations of the FMLA during pregnancy and postpartum.

TRANSLATIONAL OUTLOOK: Concerted efforts by the medical profession, legislators, employers, and public advocacy groups are needed to overcome the adverse impact of childbearing on the careers of women cardiologists.

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KEY WORDS childbearing, discrimination, Family Medical Leave Act, pregnancy, pregnancy leave, women in cardiology, workforce

APPENDIX For supplemental material, please see the online version of this paper.