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Policies and practice regarding pregnancy and maternity leave: An international survey

Danielle S. Walsh [a, *], Nancy L. Gantt [b], William Irish [a], Hilary A. Sanfey [c], Sharon L. Stein [d]

[a] Department of Surgery, East Carolina University, 600 Moye Blvd, Teaching Annex 207, Greenville, NC, 27834, USA
[b] Department of Surgery, Northeast Ohio Medical University, Mercy St. Elizabeth Youngstown Hospital, 1044 Belmont Ave., Youngstown, OH, 44501, USA
[c] Department of Surgery, Southern Illinois University, PO Box 19638, Springfield, IL, 62794, USA
[d] Department of Surgery, University Hospitals Cleveland Medical Center, 11100 Euclid Avenue, Cleveland, OH, 44106, USA

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ABSTRACT

Background: As women become a larger part of the surgical workforce, policies surrounding maternity and parental leave play a role in professional practice. Little is known about leave policies worldwide.
Methods: A de novo survey distributed internationally to women surgeons assessed leave polices for surgeons, inclusive of the regulatory body or source of applicable policies, changes in surgical practice due to pregnancy, and duration of leave for both parents.
Results: The 1111 survey respondents in 53 different countries describe diverse policies ranging from loss of operating room privileges early in pregnancy to maintenance of full surgical schedules until term delivery. Policy creators include national governments (42.38%), employers/hospitals (60.46%), supervisors (18.06%). Self-determined (9.12%), and unknown (8.7%). Paid parental leave was available to 64.44% of women surgeons and 38.68% of partners.
Conclusion: Maternity and parental leave policies vary markedly across the global surgical workforce with implications for professional practice.

Introduction

Women are vital members of the global surgical workforce, comprising nearly 20% of practicing US surgeons and exceeding 30% of surgical trainees, though the number of worldwide women surgeons is unknown.[1,2] As this segment of the surgical workforce enlarges, policies guiding the practice of surgery during pregnancy and after childbirth become an increasingly important topic. A 2014 international report on maternity and paternity leave policies around the world identified wide disparities in not only the regulations in place, but also the role of the government vs. the employer in determining policy.[3]

Insight into the application of leave policies for women surgeons in various countries is limited, with only a handful of publications describing the norms of leave for the authors' country. For example, women in the United States (US) report practicing full time until entering labor and returning to practice quickly due to financial and professional obligations.[4] Conversely, women in Germany find their practices constrained after the 21st week of pregnancy by rules that prevent them from standing more than 4 h a day and preventing work from 8 p.m. to 6 a.m.[5] To better understand the current regulations applying to women surgeons, an international survey was administered. We aim to define the baseline of current regulations and standards to gain insight into the current challenges with the intent of creating recommendations for future best practices.

Material and methods

A 25 question de novo survey tool was created by the authors to assess demographics, attitudes, regulations, and experiences of women in surgery (see Appendix 1). The survey was critiqued for content validity and pilot tested in Survey Monkey by members of the Association of Women Surgeons. Feedback from reviewers and

* Corresponding author. East Carolina University, 600 Moye Blvd, Teaching Annex 207, Greenville, NC, 27834, USA.
E-mail addresses: walshd@ecu.edu (D.S. Walsh), nlg@neomed.edu (N.L. Gantt), Irishw17@ecu.edu (W. Irish), hsanfey@siumed.edu (H.A. Sanfey), Sharon.stein@uhhospitals.org (S.L. Stein).

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functional issues in the survey were utilized to refine the questions, removing ambiguity and decreasing the number of survey items. Approval for the survey was obtained from the Institutional Review Board of the Southern Illinois University. Demographic questions included stage in career, age, relationship status, professional work status, country of employment, country of pregnancy (if any) and pregnancy history. Seven questions focused on parental leave policies, societal expectations and attitudes, and decision making for parental leave.

The survey was distributed electronically to the members of the Association of Women Surgeons (AWS) and posted to the Women Surgeons Community of the American College of Surgeons, with a request that the survey link be shared widely with women surgeons via internet links including postings on Twitter and Facebook. The AWS Facebook page published a link to the survey along with the statement that "Any woman surgeon may participate" four times from July–October 2017 and it was posted twice to the AWS Twitter feed with 47 retweets noted. The link was cross published to the closed Facebook Surgeon Moms Group in July 2017. Additionally, links to the survey were widely distributed to women attending the AWS sessions of the World Congress of Surgery 2017 in Basel, Switzerland. The survey remained open between June 1, 2017 and September 15, 2017.

De-identified surveys were completed utilizing SurveyMonkey (San Mateo, California) and data analysis was performed using SAS for Windows statistical software (SAS, Cary, NC; version 9.4). Categorical variables were summarized by presenting the number of respondents and percentage for each category. Missing data on survey questions were treated as missing; no method for imputation was utilized.

Countries with greatest number of respondents were also analyzed individually. Collectively, these countries accounted for over 85% of the respondents to the survey.

Results

Respondents to the survey included 1111 surgeons who completed one or more questions. As the survey was widely disseminated via the internet, a denominator or survey response rate is not available. Demographics for the respondents are provided in Table 1. The majority of respondents were from the United States (65.2%), but women surgeons from 53 countries responded to the survey. Countries with the greatest number of respondents (>10 respondents) were also analyzed separately (US, Great Britain, Canada, Nigeria, Australia, China, Sweden, Ireland, Israel, Finland and Italy).

Most respondents were between 36 and 45 years of age (42.4%) or 26–35 year (36.5%). The majority of respondents were currently employed as practicing surgeons (62.6%). Practicing surgeons were affiliated with an academic institution in most cases (51%), 22% had joint academic and private affiliation and 26% were affiliated with purely private practices. The majority of respondents worked full time (87.8%) and were married (81.24%). When asked if they had ever become pregnant in their medical training or career, 81.8% responded affirmatively while 18.2% denied becoming pregnant.

Respondents were asked who determined policy regarding pregnancy and maternity leave in their country; more than one answer was acceptable (Table 2). Overall, maternity leave and pregnancy policies were most commonly dictated by the hospital/employer (60.46%) or department/supervisor (18.06%). 9.12% were able to determine their own practice and 8.7% of respondents were unaware who made policy creating their leave. In the United States, most respondents answered that their hospital or employer/administrator created policy (72%), followed by national government (29.8%) and individual supervisor (23.2%). National government was the most common response for participants from England, Ireland, Finland and Italy. Australia and China stated that hospital administration was most likely to make the policy.

Table 1
Demographics of participants.

	Frequency	Percent
Country of Practice		
USA	704	65.2
England	95	8.8
Canada	31	2.9
Nigeria	22	2
Australia	21	1.9
China	21	1.9
Sweden	20	1.8
Age of Respondent		
<25	6	0.5
26–35	406	36.5
36–45	471	42.4
46–55	153	13.8
>55	75	6.7
Current Position		
Medical Student	16	1.4
Surgical Trainee	323	29
Practicing Surgeon	695	62.6
Missionary Surgeon	1	0.09
Military Surgeon	14	1.3
Retired	14	1.3
Other	48	4.3
Current Work Status		
Full Time	975	87.8
Part Time	113	9.3
Not Currently In Practice	32	3

Respondents were asked about regulations regarding reduction of patient care activities while pregnant (Table 3). A small minority of respondents were required to cease surgical duties while pregnant: 6.9% of respondents stated that they were required to stop taking night call, 2.1% of women surgeons were required to stop operating, 1.9% of women surgeons were required to decrease all patient care and 2.0% of women surgeons were required to decrease work volume. The timing of reduction in patient care activity occurred upon declaration of pregnancy in 6.8% of the respondents and during the third trimester for 25–39% of respondents. In contradistinction, 30.5% of women surgeons were only allowed to decrease night call, operating, patient care or overall work volume if on formal leave.

Surgeons in Italy were the most likely to be required to stop taking night call and operating and timing of reduction of work activity was upon declaration of pregnancy or first trimester (83%). Chinese surgeons were the least likely to be given a choice of reducing work load, as 31% of respondents in China stated that reductions in work volume were not acceptable or allowed with the exception of reduced night call in the third trimester.

Personal choice in reduction of work load was most commonly accepted in England, Canada, Sweden, Ireland and Finland, usually in the third trimester. Women surgeons from the US generally found reductions acceptable only if they were on leave, with the exception of reduction in total work volume in the third trimester.

Most respondents (64.4%) answered that paid parental leave was available for the mother, although ranges varied from 57% of US surgeon respondents to 100% of Swedish and Finnish respondents (Table 4). 33% of US, Australian and Irish respondents stated that they were not eligible for paid maternity leave. Most countries also had unpaid leave available for maternity, except China, where 55% of respondents said leave without pay was not available. Paid leave for spouse/partner was available for most respondents, with 100% of Finnish respondents and 94% of Swedish respondents stating their spouse was eligible. However, less than half of US, Canadian,

Table 2
Participants were asked to characterize who determines leave policy in their country.

	USA (704)	England (95)	Canada (31)	Nigeria (22)	Australia (21)	China (21)	Sweden (20)	Ireland (16)	Israel (16)	Finland (15)	Italy (13)	South Africa (10)
National Government	29.8	76.8	48.4	100.0	52.4	42.9	90.0	93.8	75.0	93.3	84.6	70.0
Hospital/Employer Administration	72.2	40.0	32.3	45.5	57.1	52.4	15.0	25.0	6.3	13.3	30.8	30.0
Union/Employee Representative Organization	5.0	5.3	19.4	0.0	14.3	14.3	20.0	6.3	12.5	0.0	0.0	0.0
Individual Department/Supervisor	23.2	4.2	32.3	4.6	14.3	0.0	5.0	0.0	12.5	6.7	0.0	10.0
I Determine My Own Policy	8.5	0.0	38.7	0.0	19.1	0.0	15.0	18.8	18.8	6.7	0.0	20.0
I Do Not Know	9.4	10.5	6.5	0.0	9.5	4.8	0.0	6.3	0.0	0.0	0.0	0.0

Italian, and Israeli spouses were eligible and 0% of Nigerian spouses could receive paid leave. Unpaid leave for spouses was also unlikely for 86% of Nigerian spouses and 58% of Chinese spouses.

When out on leave, 24.73% of surgeons of the ten countries with the most respondents were required to continue contributing to practice expenses, with only Sweden and Finland exempt. Only women surgeons in Sweden were exempt from contributions to healthcare and other benefits on leave. These and other concerns lead 82.6% of respondents to believe that women return to work sooner due to financial pressures (56.4% agree, 26.3% sometimes).

Discussion

With over 1100 respondents, this is the largest international survey of women surgeons to date, and the demographics alone provide unique insights. We have identified that women surgeons are present in at least 53 separate countries, representing 27% of the world's 195 sovereign nations and 31.7% of the 167 countries for which a surgical workforce was previously identified.[6] A surprising 81% of all women surgeons who answered the survey married, compared with a 2012 report of US women surgeons in which 65% were married.[4] Additionally, 87.8% of the survey respondents work full-time, a lower percentage than the 93.8% reported in other reported by Tropmann et al. nearly a decade earlier.[7]

More importantly, the results of this survey demonstrate significant diversity in parental leave policies for surgeons worldwide with little standardization in practices both during pregnancy and after delivery. Underlying this variability is the heterogeneity of decision makers in the creation of policy. While national regulations may lay the foundation for leave policies, greater control is exerted at the individual employer or supervisor level for 72% and 23%, respectively, of women surgeons. Of note, the same employers and supervisors determining most leave policies are viewed by the majority of respondents as pressuring their surgeons to return to work sooner. These dual powers of influence of power and pressure in the hands of employers and supervisors likely contribute to fewer than 10% of women surgeons perceiving an ability able to make their own decisions regarding maternity leave.

Policies to restrict women surgeons' work while pregnant may be based on concern for pregnancy related complications, which are reported to occur in greater frequency in surgeons than the general population of women.[8] In a study by Scully et al., 24.5% of US women physicians in procedural medical fields, such as surgery, with a history of pregnancy, reported the need to miss work due to pregnancy related complications.[9] Preterm labor developed in 12.6%, an incidence 28% higher than the 9.85% incidence of preterm delivery in the US general population.[10] A survey of Irish trainees found that surgical trainees were more likely to have pregnancy complications than both non-surgical trainees (65% vs 36.4% insert % ($P = 0.0329$) and the partners of their male trainees (vs 11.5%, $P = 0.0002$).[11] The etiology for this increase in pregnancy complications is likely multifactorial, though long durations of standing, overnight shifts, and demanding work conditions have been considered as contributing factors.[8,11,12] Despite multiple studies demonstrating such concerns, our study identified that there are countries in which women have no protection or ability to reduce their surgical work load unless they take leave, often without pay. Three countries for which there are no legislative mandates for work load reduction in pregnancy, China, Nigeria and US, are each listed in the top ten countries for high rates of preterm births.[13]

Conversely, some countries have strict workplace requirements for pregnant women surgeons and required durations of maternity leave with significant impacts on surgical practice. In the Netherlands, night shift work and standing for more than 2 h a day are prohibited after 20 weeks of pregnancy.[14] German women who are pregnant or nursing are required to limit standing to 4 h a day after their 5th month of pregnancy, and pregnant surgeons are restricted from potential environmental health risks, such as anesthetic gases and radiation, after 21 weeks gestation.[5,15] Italian surgeons in this study reported withdrawal from night call and

Table 3
Participants were asked to characterize who determines policy to reduce work during pregnancy.

	USA	England	Canada	Nigeria	Australia	China	Sweden	Ireland	Israel	Finland	Italy	South Africa
Stop Taking Night Call												
Personal Choice	29.4	72.8	46.2	6.3	40.0	5.0	70.6	66.7	13.3	42.9	15.4	37.5
Only Acceptable if on Leave	38.7	7.4	23.1	43.8	45.0	25.0	11.8	6.7	0.0	7.1	0.0	37.5
Not Acceptable/Not allowed	18.4	1.2	7.7	37.5	10.0	5.0	0.0	6.7	6.7	0.0	7.7	12.5
Required by Regulation	0.9	3.7	11.5	6.3	0.0	45.0	0.0	0.0	80.0	21.4	76.9	0.0
Stop Operating												
Personal Choice	37.5	53.1	44.0	25.0	35.0	30.0	76.5	60.0	50.0	78.6	15.4	62.5
Only Acceptable if on Leave	38.2	24.7	36.0	43.8	45.0	30.0	23.5	13.3	21.4	14.3	0.0	25.0
Not Acceptable/Not allowed	15.0	16.1	4.0	18.8	15.0	35.0	0.0	26.7	21.4	7.1	7.7	12.5
Required by Regulation	0.2	0.0	4.0	6.3	0.0	5.0	0.0	0.0	0.0	0.0	69.2	0.0
Cease All Patient Care												
Personal Choice	22.9	19.8	48.0	6.3	30.0	5.0	17.7	6.7	0.0	25.0	23.1	25.0
Only Acceptable if on Leave	50.6	46.9	36.0	31.3	50.0	35.0	52.9	33.3	64.3	50.0	7.7	37.5
Not Acceptable/Not allowed	19.1	24.7	8.0	62.5	10.0	45.0	17.7	33.3	35.7	16.7	15.4	37.5
Required by Regulation	0.2	0.0	0.0	0.0	0.0	10.0	5.9	20.0	0.0	0.0	30.8	0.0

Table 4
Participants were asked to characterize policies related to financial considerations in parental leave as percentages.

	USA	England	Canada	Nigeria	Australia	China	Sweden	Ireland	Israel	Finland	Italy	South Africa	Total %
Paid Parental Leave for Woman Surgeon													
Available	57.41	84.21	72	85.71	61.9	85	100	60	85.71	100	69.23	88.89	64.44
Unavailable	33.97	6.58	28	9.52	33.33	15	0	33.33	14.29	0	15.38	11.11	28.03
Unsure	8.62	9.21	0	4.76	4.76	0	0	6.67	0	0	15.38	0	7.52
Unpaid Parental Leave for Woman Surgeon													
Available	80.91	83.12	82.61	40	100	30	68.75	86.67	92.31	77.78	61.54	88.89	79.43
Unavailable	9.81	1.3	13.04	33.33	0	55	25	0	7.69	22.22	23.08	0	10.72
Unsure	9.28	15.58	4.35	26.67	0	15	6.25	13.33	0	0	15.38	11.11	9.85
Paid Leave for Partner													
Available	29.38	74.32	39.13	0	55	82.35	94.12	50	30.77	100	41.67	55.56	38.68
Unavailable	52.92	17.57	47.83	94.44	35	11.76	0	50	53.85	0	50	33.33	46.58
Unsure	17.7	8.11	13.04	5.56	10	5.88	5.88	0	15.38	0	8.33	11.11	14.74
Unpaid Leave for Partner													
Available	53.51	77.63	61.9	6.67	70	23.53	68.75	78.57	53.85	77.78	50	22.22	55.67
Unavailable	28.46	7.89	23.81	86.67	20	58.82	25	14.29	30.77	22.22	41.67	33.33	27.77
Unsure	18.03	14.47	14.29	6.67	10	17.65	6.25	7.14	15.38	0	8.33	44.44	16.56
Pay Practice Expenses on Leave													
Yes	20.95	28.21	65.38	47.62	61.9	30	0	50	21.43	0	15.38	33.33	24.73
No	51.28	51.28	26.92	28.57	28.57	55	100	42.86	50	100	61.54	44.44	51.14
Unsure	27.77	20.51	7.69	23.81	9.52	15	0	7.14	28.57	0	23.08	22.22	24.13
Pay for Health and other Benefits on Leave													
Yes	33.84	29.49	76.92	33.33	95.24	30	0	73.33	35.71	15.38	15.38	55.56	35.92
No	45.69	53.85	23.08	33.33	4.76	50	100	26.67	57.14	76.92	76.92	33.33	46.3
Unsure	20.47	16.67	0	33.33	0	20	0	0	7.14	7.69	7.69	11.11	17.78

operating as early as the first trimester, representing significant professional restriction of practice. While the premise behind these regulations is conceptually the safety of the mother and fetus, they may effectively prohibit women surgeons from working after 21 weeks.[5] Though presumably well intentioned, such restrictive policies are also viewed negatively by women surgeons. Knieper et al. reported that 75% of German women surgeons desired changes in the laws surrounding pregnant women in the workplace and 80% felt that continuation of surgical activities be based on individual decisions and not mandated. Likewise, about 15% of respondents felt their return to work was unnecessarily delayed by prolonged leave polices at least some of the time. Particularly in the setting of weak scientific data to support stringent policies, individual surgeon risk factors should be considered, and women surgeons provided flexibility in determining the accommodations in professional activity needed for a safe pregnancy.[16]

Culture also plays a role in both the provision and utilization of parental leave, including its application to fathers. The US company Facebook provides up to 4 months of paid parental leave after the birth of a child, for both fathers and mothers. While women tend to take the full duration of available leave, men take just over two months on average – even though they would collect a full salary.[17] Both men and women taking longer parental leave periods have cited concern for co-workers and supervisors viewing them as less committed to their career.[17,18] In Sweden, the mother and father are permitted 390 days of combined leave to be taken before the child's 8th birthday, 2 months of which are set aside for the father alone. Despite these generous policies, paternity leave did not become a cultural norm in Sweden until legislation decreased leave by a month if the father did not take two 2 full months.[18] Despite these cultural considerations, our study found that 53.8% of fathers (375 of 697 respondents) did take leave for the birth of their first child, with an average duration of leave of 5 weeks.

Even when national policies permit for leave, women surgeons may not take extended time away from work. Chinese women surgeons reported that more than half of them did not have access to even unpaid leave. This occurs despite a national policy of 98 days of maternity leave for all registered women paid for by the government at 100% salary, inclusive of 15 days prior to delivery.[19] While beyond the scope of this survey to determine the cause for this discrepancy, this finding illustrates the gap between legislative policy and end impact on the woman surgeon.

Internationally, maternity and parental leave benefits are largely financed through governmental benefit programs (58%), joint governmental and employer systems (16%), or employers alone (24%).[3] Within countries there can also be variability; four US states finance leave through a payroll tax administered through state disability programs with the remainder lacking a governmental provision and requiring employers to bear any financial costs.[20] Particularly in settings in which costs are born by the employer, financial pressures on the employer are integral to leave policies and duration. These costs may underlie the survey finding that approximately ¼ of surgeons must contribute to practice expenses and 1/3 contribute to benefits, such as health insurance, while on leave. These requirements transition the financial pressures to woman surgeon, manifesting as more than 4 out of 5 respondents noting the need to return to practice earlier at least sometimes for monetary reasons.

For nations in which women take long durations of pregnancy followed by parental leave, concern may arise over loss of competency. The safe amount of time off from surgery with retention of surgical skills, is unknown though best evidence suggests a degradation of skills becomes measurable after 6–18 months.[21] The degree of degradation and the need for a mentored return become more likely for less experienced surgeons, such as trainees.[22,23] The American Board of Surgery suggest surgeons re-train after two years or more away from surgical practice, a policy also followed by other countries, such as Australia and Latvia.[21,24] In this survey, approximately 2/3 of women agreed that surgeons may or actually do return to practice sooner due to concern of loss of skills. This finding may partially reflect the demographics of respondents, with 29% being trainees.

With a shortage of surgeons worldwide, it is critical that women are attracted to and enter the field in larger numbers, remain active in surgery throughout their reproductive years, and maintain professional and personal satisfaction within surgery while raising a family (Hoyler).

The limitations of the study include inability to prevent

selection bias through electronic distribution of the survey to the international community. This uncontrolled distribution resulted in more responses from the US population of women surgeons than other countries and could contribute to the high number of respondents who are married and who have had a pregnancy. The absence of data on the number of women in the global surgical community precludes estimating response rates. We attempted to identify a denominator for our survey by contacting the accrediting bodies of other countries and inquiring as to the number of practicing women surgeons but found that few are able to provide such data. Additionally, since no identifying information was collected, it is possible that some surgeons completed the survey more than once or that men completed the survey, thus skewing the data slightly. In addition, survey respondents may be more likely to have completed the survey if married and having been pregnant, which can also skew overall demographics. While we can identify overall leave policies by country, it is not possible to confirm the individual employer or supervisor policies influencing leave for surgeons subject to them, a majority of the respondents. Relying on surgeon recall and understanding of such regulations can lead to reporting inaccuracies and response bias. Low response rates or absence of response from many countries may represent absence of women surgeons, inability to reach those surgeons through our survey distribution methods, or unwillingness to participate.

This study draws attention to the tremendous variation in leave policies and illustrates the need to define optimal policies for the support of a reliable surgical force while maintaining workplace safety and professional contributions. Currently, policies are often mandated by government and employers, and leave little flexibility to the needs and desires of the surgeon. While some countries mandate a significant amount of time off or away from direct patient care, others provide overly rigid structure or limited support for the needs of pregnant surgeons and new parents. Importantly, this creates opportunity for women surgeons to change policy through leadership and advocacy, ideally under the umbrella of external organizations, such as surgical professional and hospital associations. Utilizing best evidence surrounding the true workplace risks along with the professional desires of women surgeons, such bodies can create guidelines that seek to balance workforce needs, ensure supportive environments, and incorporate individualized workplans into employer policy. Further effort into the development of best practices is needed to allow women to be contributing members of the surgical workforce while protecting the surgeon and optimizing professional satisfaction.

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Appendix A. Supplementary data

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