

# Obstetrics anyone?

## *How family medicine residents' interests changed*

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### ABSTRACT

**OBJECTIVE** To determine family medicine residents' attitudes and plans about practising obstetrics when they enter and when they graduate from their residency programs.

**DESIGN** Residents in each of 4 consecutive years, starting July 1991, were surveyed by questionnaire when they entered the program and again when they graduated (ending in June 1996). Only paired questionnaires were used for analysis.

**SETTING** Family medicine residency programs at the University of Toronto in Ontario.

**PARTICIPANTS** Of 358 family medicine residents who completed the University of Toronto program, 215 (60%) completed questionnaires at entry and exit.

**MAIN OUTCOME MEASURES** Changes in attitudes and plans during the residency program as ascertained from responses to entry and exit questionnaires.

**RESULTS** Analysis was based on 215 paired questionnaires. Women residents had more interest in obstetric practice at entry: 58% of women, but only 31% of men were interested. At graduation, fewer women (49%) and men (22%) were interested in practising obstetrics. The intent to undertake rural practice was strongly associated with the intent to practise obstetrics. By graduation, residents perceived lifestyle factors and compensation as very important negative factors in relation to obstetric practice. Initial interest and the eventual decision to practise obstetrics were strongly associated.

**CONCLUSIONS** Intent to practise obstetrics after graduation was most closely linked to being a woman, intending to practise in a rural area, and having an interest in obstetrics prior to residency. Building on the interest in obstetrics that residents already have could be a better strategy for producing more physicians willing to practise obstetrics than trying to change the minds of those uninterested in such practice.

### RÉSUMÉ

**OBJECTIF** Déterminer l'attitude et les projets des résidents en médecine familiale à l'égard de l'exercice de l'obstétrique, au moment de leur admission au programme de résidence et une fois leur diplôme obtenu.

**CONCEPTION** Un sondage a été effectué auprès des nouveaux résidents lors de leur admission au programme, et ce durant quatre années consécutives à compter de juillet 1991, et l'exercice a été répété au moment de l'obtention de leur diplôme (se terminant en juin 1996). Seuls les questionnaires jumelés ont servi à l'analyse.

**CONTEXTE** Les programmes de résidence en médecine familiale à l'Université de Toronto, en Ontario.

**PARTICIPANTS** Au nombre des 358 résidents en médecine familiale qui ont complété le programme de l'Université de Toronto, 213 (60%) ont rempli le questionnaire au début et à la fin de leur résidence.

**RÉSULTATS** L'analyse s'est fondée sur 215 questionnaires jumelés. Les résidentes s'intéressaient davantage à l'exercice de l'obstétrique au moment de leur inscription: 58% des femmes, mais seulement 31% des hommes s'y intéressaient. Au moment de la graduation, un nombre moins élevé de femmes (49%) et d'hommes (22%) s'intéressaient à la pratique de l'obstétrique. L'intention d'exercer en milieu rural était fortement associée à celle de pratiquer l'obstétrique. Au moment de l'obtention de leur diplôme, les résidents étaient d'avis que les aspects liés au mode de vie et la rémunération se révélaient des facteurs très importants qui influençaient négativement l'intention d'exercer l'obstétrique. L'intérêt initial et la décision éventuelle de pratiquer l'obstétrique étaient étroitement reliés.

**CONCLUSIONS** L'intention d'exercer l'obstétrique après l'obtention du diplôme était plus intimement associée au fait d'être une femme, de prévoir exercer en milieu rural et d'avoir eu un intérêt pour l'obstétrique avant la résidence. Miser sur l'intérêt que portent déjà les résidents pour l'obstétrique pourrait se révéler une stratégie plus judicieuse, pour augmenter le nombre de médecins disposés à pratiquer l'obstétrique, que d'essayer de faire changer d'idée ceux et celles qui ne s'intéressent pas à cette pratique.

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**P**reserving and enhancing the active role of family physicians in the practice of obstetrics is generally agreed to be very important. Yet the overall trend for family physicians to give up practising obstetrics has been well documented in both Canada<sup>1-4</sup> and the United States.<sup>5-9</sup> Medicolegal concerns,<sup>6,9-12</sup> lifestyle issues,<sup>5,8,9,13,14</sup> economic factors,<sup>13,15,16</sup> interruption of office routine,<sup>10,14</sup> and insufficient training<sup>8,14</sup> are the main reasons given for this trend. Several recent studies have focused on the family practice residency experience as it relates to patterns of obstetric practice after graduation<sup>6,9,14</sup> and on the factors that influence family medicine trainees to choose to practise obstetrics.<sup>15</sup>

A review of the literature suggests that few analyses of the effect of time spent in the residency program itself on the attitudes, perceptions, and beliefs of residents in regard to family practice obstetrics have been done. Information gathered in this area might increase our understanding of what residents need in obstetric training and how family practice residency programs could better meet that need.

### Objective

The purpose of this study was to survey University of Toronto family medicine residency trainees as they entered the program, and then again 2 years later when they graduated, to document their beliefs and plans around obstetric practice. We hypothesized that the program influenced their decisions on whether to practise obstetrics. We hoped to identify factors that might have influenced their decisions.

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### Setting

The family medicine residency program at the University of Toronto has 90 to 100 residents in each of the program's 2 years. Residents are scattered among 10 hospital-based programs. The hospitals range from tertiary care maternity centres to community teaching hospitals with few other house staff. Residents are expected to follow a minimum of six patients through all stages of pregnancy, including attending them during labour and delivery (with family physician staff supervision).

Family practice obstetric experience is available during family medicine block time because all units have teaching staff who do obstetrics. Staff physicians deliver from 30 to more than 150 babies each per year. Most units also have 1 to 2 months of block obstetrics-gynecology service experience as part of the core curriculum for their residents. During the study period, neonatal resuscitation programs, neonatal rotations, and Advanced Life Support in Obstetrics (ALSO) and Advances in Labour and Risk Management (ALARM) courses were available to residents as elective experiences, but were not mandatory.

### METHODS

A pretested questionnaire was sent for 4 consecutive years (1991 to 1994) to all incoming residents during their first month in the residency program. In addition to age, sex, and medical school attended, the questionnaire asked new residents whether they were interested in practising obstetrics after graduation and where they intended to practise. Residents were also asked to identify experiences that had influenced their attitude to obstetric practice and when these had occurred. The questionnaire asked residents how many deliveries they thought they needed to attend in order to be comfortable doing obstetrics and the number of women they would need to follow through all stages of pregnancy and postpartum care to be comfortable providing maternity care. Residents were then asked to rate the influence of several factors on their decision to practise obstetrics in the future.

A second mailing was sent 1 month later to nonrespondents, and a third mailing was sent if necessary. Two years later, the same residents received a follow-up questionnaire just before graduation. All questionnaires were identified by number codes linking entry and exit responses. Codes were known only to the administrative assistant handling the mailing. Approval from the Research Ethics Board of Women's College Hospital was obtained for the project.

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The exit questionnaire carried the same questions as the entry questionnaire with minor adjustments to reflect the difference in residents' status. In addition, it asked residents how the family practice residency program *itself* had influenced their decisions about practising obstetrics, how many births they had actively participated in during the residency, and how many family practice patients they had followed through the various stages of pregnancy and beyond. It also asked residents to rate the quality of teaching and supervision done by family physicians and obstetricians as poor, fair, good, or excellent. Data were analyzed using  $\chi^2$  analysis, descriptive statistics, and Student's *t* tests with the Statistical Package for the Social Sciences 7.5 for Windows and Epi Info, version 5.<sup>17</sup>

## RESULTS

From 1991 to 1994, 385 residents entered the residency program; 358 completed the program. A total of 311 residents completed entry surveys (81% response rate), and 264 responded on exit (74%). There were 215 paired questionnaires (60%), and all further descriptions are based only on the paired responses. **Table 1** shows the demographics of responders and nonresponders. At program entry, responders' mean age was 26.8 years (standard deviation [SD] 4.25 years) and nonresponders' mean age was 27.4 years (SD 4.08); *P* value was not significant. At graduation, the average age of responders was 28.3 years (SD 3.5 years). Women made up 45% (*n*=97, 95% confidence interval [CI] 38 to 52) of responders.

On entry, 44% (*n*=93, CI 39 to 50) of the sample responded they were "certain" or "likely" to do obstetrics on graduation. By graduation, only 34% (*n*=72, CI 28 to 40) were planning to practise obstetrics. **Table 2** shows the correlation of interest on entry to the program with intent to practise obstetrics on graduation. **Figure 1** gives a more detailed breakdown of responses on entry and exit.

Male and female residents' plans to do intrapartum care were markedly different at time of entry into and exit from the program (**Figure 2**). **Table 3** shows intended site of practice on graduation and compares this with residents' intention to practise obstetrics. Most of those undecided as to site at time of entry into the program subsequently chose urban or suburban settings ( $\chi^2$  90, *df* 9, *P*<.001). Residents' responses to when they developed their interest in obstetrics indicated 55% developed an interest during clerkship, 15% during medical school, and 6% before medical

**Table 1. Characteristics of responders and nonresponders**

CHARACTERISTIC	RESPONDERS* (N = 215) N (%)	NONRESPONDERS† (N = 172) N (%)	P VALUE
Sex			NS
• Female	97 (58)	71 (42)	
• Male	118 (54)	100 (46)	
Years of entry and exit			<.001
• 1991 1993	44 (47)	50 (53)	
• 1992 1994	66 (71)	27 (29)	
• 1993 1995	60 (59)	41 (41)	
• 1994 1996	45 (45)	54 (55)	
Hospital base (training site)			NS
• 1	36 (51)	34 (49)	
• 2	15 (54)	13 (46)	
• 3	27 (69)	12 (31)	
• 4	10 (40)	15 (60)	
• 5	27 (52)	25 (48)	
• 6	21 (66)	11 (34)	
• 7	19 (53)	17 (47)	
• 8	19 (59)	13 (41)	
• 9	20 (57)	15 (43)	
• 10	21 (55)	17 (45)	
Medical school			NS
• University of Toronto	143 (60)	94 (40)	
• Other Ontario	41 (47)	47 (53)	
• Other Canadian	15 (44)	19 (56)	
• Foreign	16 (62)	10 (38)	

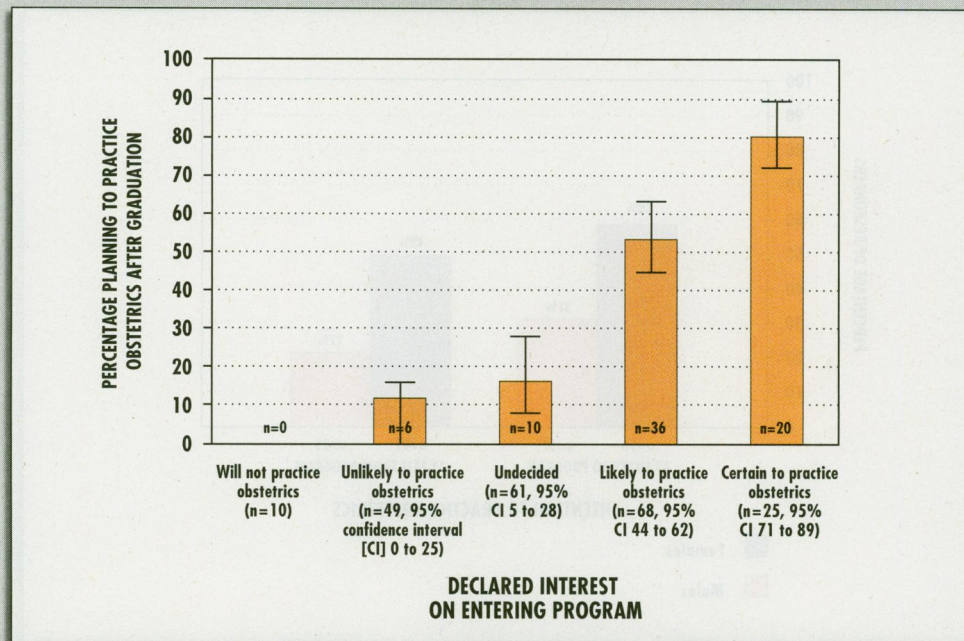
\* Paired responses at entry and exit.

† At entry, exit, or both.

**Table 2. Interest in practising obstetrics on entry compared with intention to practise obstetrics 2 years later (N = 213):  $\chi^2$  51, *df* 1, *P*<.001.**

INTEREST IN PRACTISING OBSTETRICS ON ENTRY TO PROGRAM	INTENTION TO PRACTISE OBSTETRICS ON EXIT N (%)	NO INTENTION TO PRACTISE OBSTETRICS (ANTENATAL CARE ONLY OR UNDECIDED) N (%)
Interest in practising obstetrics ( <i>n</i> =93)	56 (60)	37 (40)
No interest, unlikely, or undecided ( <i>n</i> =120)	16 (13)	104 (87)
TOTAL	72 (34)	141 (66)

**Figure 1.** Evolution of residents' plans to practise obstetrics



school. The remaining 24% were either undecided (17%) or became interested at other times in their lives (7%).

Responses from the incoming group varied widely on the number of deliveries they would need to attend during residency to feel comfortable practising obstetrics. The number ranged from five to 500 with a mean of 68 (SD 48). Overall, this expectation was met: the mean number of births actually attended was 56 (SD 49, mean of paired differences was 11.3,  $t$  2.82,  $df$  195,  $P$  = .005); and more than 85% of respondents had done at least 20 deliveries. There was a marked discrepancy between the number of patients residents thought they needed to follow through all stages of pregnancy and postpartum to feel comfortable practising obstetrics (mean 44.7) and the number they reported following during the program (mean 8.5, mean of paired differences 36.2,  $t$  12.53,  $df$  182,  $P$  < .001).

Residents interested in obstetrics at entry were more likely to have attended a large number of births. Those "likely" or "certain" to do obstetrics on entry ( $n$  = 93) were twice as likely to be among the top third of residents in number of deliveries attended ( $\chi^2$  27,  $df$  8,  $P$  < .001). By graduation, those intending to provide intrapartum care ( $n$  = 56) were four times as likely to be in the top third of residents in number of

deliveries attended as in the bottom third ( $\chi^2$  = 28.5,  $df$  6,  $P$  < .001). **Figure 3** shows physicians' ratings of the quality of obstetric teaching and supervision.

Factors influencing decisions about practising obstetrics were rated significantly differently at entry and exit in the areas of lifestyle, adequacy of compensation, and desire to participate in a happy family event (**Table 4**). Factors related to medicolegal issues, malpractice costs, family physician and obstetrician role models, and anxiety over labour and delivery did not change significantly.

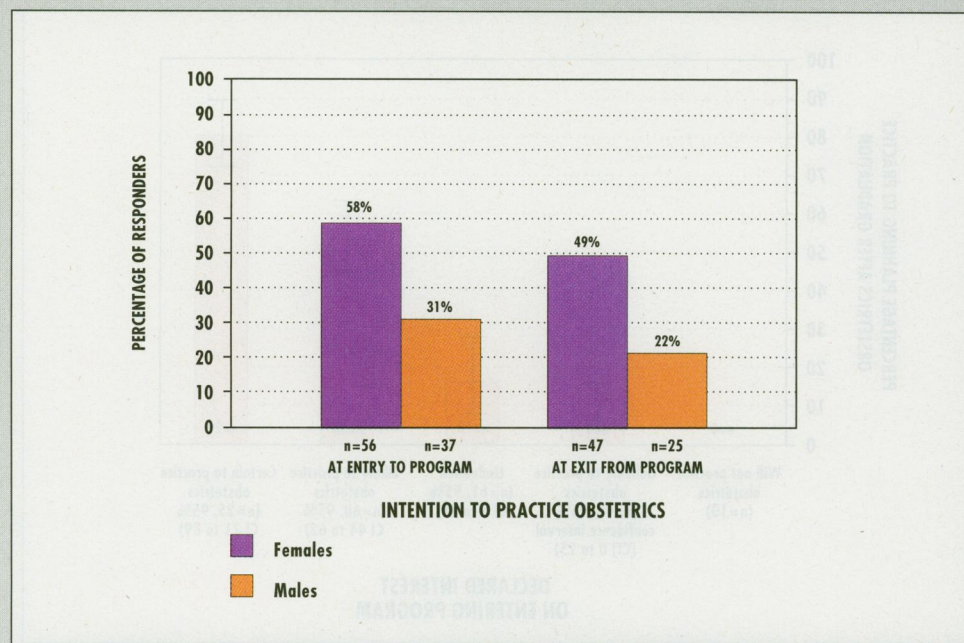
At graduation, 30% (95% CI 24 to 37) stated that the residency program *itself* had "turned them off" or made them "less likely" to do obstetrics. A further 35% (95% CI 28 to 42) thought the program made no difference, while the remaining 35% (95% CI 28 to 42) said it "turned them on" or made them "more likely" to do obstetrics.

## DISCUSSION

Consistent with the range quoted in the literature,<sup>6,15,18</sup> 33% of the graduates in this sample intended to practise obstetrics. Significantly more women planned to do deliveries as part of their practice. Interyear

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**Figure 2.** Proportions of women and men planning to practise obstetrics:  $P \leq .001$



analysis of data showed that the proportion of women intending to practise obstetrics was similar in each of the 4 years studied. This is at odds with the findings of earlier studies,<sup>15,19</sup> but more consistent with the recent findings of others studying Ontario family practice residents<sup>20</sup> and of those working with the University of Toronto Obstetrics and Gynaecology residency training program. Explanations for this could include the now greater proportion of women in medical school classes and the suggestion that the difficulties inherent in practising obstetrics make the decision to do so more a matter of the heart than the head. (Recent work by Carroll et al<sup>21</sup> suggests that role models who are coping well, group practice, and sign-out arrangements could help address the lifestyle issues important to women practitioners.)

The overall figure of 33% intending to practise obstetrics after graduation is relatively low and worrisome given the well-recognized decline in the practice of obstetrics that occurs within the first 5 years of practice.<sup>10,22</sup> Furthermore, self-selection bias in responding could mean that nonresponders were not interested in practising obstetrics and were, therefore, less likely to respond. This would further lower the true rate of our graduates intending to practise obstet-

rics. Those still undecided at time of graduation are unlikely to have a strong allegiance to family practice obstetrics and might see obstetrics only as a means to an end, if temporarily practising obstetrics will further their careers. The larger numbers of women intending to practise obstetrics might be an encouraging sign because the proportion of women residents has increased in most family practice residency programs.

Those intending to practise in rural areas were more than twice as likely to be interested in practising obstetrics. This is worrying for the future of family practice obstetrics in larger centres. The University of Toronto program is essentially urban, and the teaching staff role models work mainly in an urban setting. This has led to a marked increase in concerns about lifestyle and no positive change in the perception of family physicians as role models. This lack of change in perception was surprising, given the exposure over the 2 years of the program and the superior evaluations residents gave family physicians for obstetric teaching and supervision. Initiatives in changing curriculums to affect residents' attitudes to family practice training in obstetrics have had mixed results.<sup>23</sup>

Gaining experience in deliveries did not seem to be a problem in this program. Each resident had an

opportunity to participate in at least 300 deliveries. Those interested in obstetrics could choose to attend more deliveries than their colleagues to augment their experience.

The program seemed mostly to reinforce existing feelings about obstetrics. Only six of the 59 people entering the program with negative feelings about obstetrics were planning to do deliveries on graduation. On the other hand, 20 of the 25 people "certain" to do obstetrics on entry were still planning to practise obstetrics by the time they graduated. This suggests that residents who have negative feelings about obstetrics or who have made up their minds before entry into the program are very unlikely to be influenced by the program to change their minds.

Only a few respondents planning to do obstetrics on graduation had initially said they were "unlikely to do" and "undecided." This suggests that most of the initially undecided group might, in fact, have had negative feelings about doing obstetrics and might have responded "undecided" on the questionnaire just to be politically correct. The most fertile ground for recruits to obstetric practice seems to be among those "likely to" at time of entry and among those whose feelings were formed as a result of their most

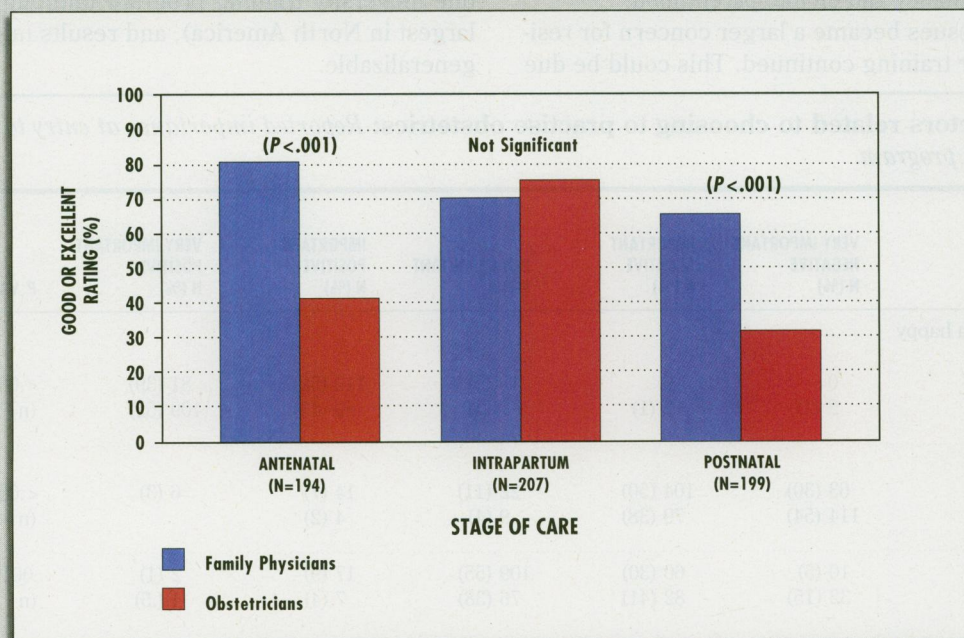
**Table 3. Expected site of practice and intent to practise obstetrics on exit from program:**  $\chi^2$  25.4, df 9, P = .003.

SITE	RESIDENTS (N = 201) N (%)	RESIDENTS INTENDING TO PRACTISE OBSTETRICS (N = 67) N (% OF THOSE AT THIS SITE CHOOSING TO DO OBSTETRICS)
Urban	60 (30)	17/60 (28)
Suburban	93 (46)	23/93 (25)
Rural	37 (18)	23/37 (62)
Undecided	11 (6)	4/11 (36)
TOTAL	201 (100)	67/201 (33)

recent experiences in obstetrics (ie, clinical clerkship). Focusing on these residents, who make up one third of the total, might help maintain more interest in family practice obstetrics than trying to cajole those "unlikely to" or "certain not to" do obstetrics.

The findings of this study will contribute to ongoing discussions about how best to use limited obstetric resources (both teaching staff and patients).

**Figure 3. Family physicians' and obstetricians' ratings of quality of obstetric teaching and supervision**



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#### Key points

- Overall, the proportion of residents intending to practise obstetrics after their training dropped 10%, from 44% in the first months of residency to 34% just before graduation in the second year.
- Not surprisingly, residents who intended to practise obstetrics managed to attend many more deliveries during training than those who did not plan to practise obstetrics.
- Residents who initially expected to practise in rural areas were also more likely to attend more deliveries during residency.
- About a third of residents said the residency program discouraged them from practising obstetrics; the same proportion reported it stimulated them to practise obstetrics!

Should we provide equal exposure to obstetrics to all residents, or should we concentrate resources on those most likely to carry through and do obstetrics after graduation? This might already be happening through a pragmatic self-selection process. Also, given that more than half our residents formed their opinions on practising obstetrics in clerkship, should family medicine obstetrics have a larger role during clerkship? Should every medical student be exposed to a pregnant woman and her family through all stages of pregnancy and on into parenthood?

Lifestyle issues became a larger concern for residents as their training continued. This could be due

partially to a need to make decisions and face up to issues that are becoming more real at the time of graduation. But it might be a clear call to family physicians practising obstetrics to assess their practice styles, call arrangements, and other lifestyle patterns in the area of obstetrics. It should cause all of us to reflect on what positive or negative messages we are sending to our trainees (eg, residents did not see family physician obstetricians as good role models despite good evaluations of their teaching). Recent work by Carroll et al<sup>21</sup> begins very important research into what makes family practice obstetrics work for successful practitioners. The findings can be applied in a more structured way to trainees. We are also beginning to see reports in the literature of innovative, successful approaches to family practice obstetrics, such as that of Lane and Malm.<sup>24</sup>

Medicolegal concerns remained prevalent over the course of the program, in spite of evidence that medicolegal issues rarely affect family physicians practising obstetrics in Canada.<sup>10,11</sup> Better education of our residents in this area seems appropriate.

The findings in this study must be interpreted with caution. The sample size is relatively small and the results are subject to self-selection bias. We have no information on the plans of residents who did not respond. The study was conducted at only one university training program (although it is the largest in North America), and results might not be generalizable.

**Table 4. Factors related to choosing to practise obstetrics: Reported importance at entry to and exit from program.**

FACTORS	VERY IMPORTANT NEGATIVE N (%)	IMPORTANT NEGATIVE N (%)	NOT IMPORTANT N (%)	IMPORTANT POSITIVE N (%)	VERY IMPORTANT POSITIVE N (%)	P VALUE*
Participating in a happy family event						
• Entry	0	0	18 (9)	110 (52)	81 (39)	<.0001 (n=209)
• Exit	2 (1)	2 (1)	7 (3)	89 (43)	109 (52)	
Lifestyle issues						
• Entry	63 (30)	104 (50)	22 (11)	14 (7)	6 (3)	<.0001 (n=209)
• Exit	114 (54)	79 (38)	9 (4)	4 (2)		
Adequate compensation						
• Entry	10 (5)	60 (30)	109 (55)	17 (9)	2 (1)	.001 (n=198)
• Exit	32 (15)	82 (41)	76 (38)	7 (4)	1 (.5)	

\*P values are from  $\chi^2$  test of change in importance of factors from entry to exit.

## Conclusion

Results of this study point to a change in the numbers of residents interested in practising obstetrics and increasing concern about several issues, of which lifestyle seems the most crucial for respondents in this group. There is a marked increase in the proportion of women graduates planning to practise obstetrics compared with earlier reports. Findings also suggest that most trainees have formed their opinions and intentions about practising obstetrics prior to residency and are unlikely to change them.

Focusing resources and encouragement on residents interested in practising obstetrics appears to be a better strategy than trying to change the minds of those who are uninterested. We think it is important to collect the best possible data on the effect of our residency programs on the practice of obstetrics. With this information, we can make good decisions and choices on how best to address the needs of our trainees and, eventually, the needs of practising physicians. ♣

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## References

- Klein M, Reynolds JL, Boucher F, Malus M, Rosenberg E. Obstetrical practice and training in Canadian family medicine: conserving an endangered species. *Can Fam Physician* 1984;30:2093-9.
- Rosser WW, Muggah H. Who will deliver Canada's babies in the 1990s? *Can Fam Physician* 1989;35:2419-22, 2424.
- Perkin RL. Family practice obstetrics. *Bull Soc Obstet Gynecol Can* 1986;2:20-1.
- Reynolds JL. Who should be doing obstetrics in the 1990s? *Can Fam Physician* 1988;34:1937-40.
- Crump WJ, Marquiss C, Pierce P. Impact of family physicians' cessation of obstetric care. *Ala Med* 1990;59(12):26-30.
- Fletcher JL Jr, Schwartz MP. Why family practice residents choose not to practice obstetrics. *J Med Assoc Ga* 1989;78(8):559-61.
- Rosenblatt RA, Wright CL. Rising malpractice premiums and obstetric practice patterns. The impact on family physicians in Washington State. *West J Med* 1987;146:246-8.
- O'Dell M, Price J, Liese B. Obstetrical practices of members of the Kansas Academy of Family Physicians. *Kans Med* 1989;90:247-50, 258.
- Bredfelt R, Colliver JA, Wesley RM. Present status of obstetrics in family practice and the effect of malpractice issues. *J Fam Pract* 1989;28:294-7.
- Woodward CA, Rosser WW. Effect of medico-legal liability on patterns of general and family practice in Canada. *Can Med Assoc J* 1989;141:291-8.
- Rosser WW, Woodward C. Medicolegal liability for Ontario physicians. *Can Fam Physician* 1991;37:1390-5.
- Latimore WL. Pregnancy care liability misperceptions among medical students in Florida. *Fam Med* 1994;26(3):154-6.
- Gorsche RG, Falk WA. Family physicians' attitudes towards obstetrics in Alberta. *Can Fam Physician* 1985;31:1869-77.
- Buckle D. Obstetrical practice after a family medicine residency. *Can Fam Physician* 1994;40:261-8.
- Reid AJ, Carroll JC. Choosing to practise obstetrics. What factors influence family practice residents? *Can Fam Physician* 1991;37:1859-67.
- Fletcher JL Jr, Schwartz MP. Obstetrics in family practice. *J Fam Pract* 1989;29:239-40.
- Dean AG, Dean JA, Burton AH, Dicker RC. *Epi Info, version 5. A word processing, database, and statistics program for epidemiology on microcomputers*. Stone Mountain, Ga: USD, Inc; 1990.
- Smith MA, Howard KC. Choosing to do obstetrics in practice: factors affecting the decisions of third-year family practice residents. *Fam Med* 1987;19(3):191-4.
- Keane D, Woodward CA, Ferrier BM, Cohen M, Goldsmith CH. Female and male physicians. Different practice profiles. *Can Fam Physician* 1991;37:72-81.
- Hodgetts G, Godwin M, MacDonald S, Seguin R. Longitudinal study of family medicine residents' intentions to include obstetrics in their practice: Part 1 of a three-part study. In: *Proceedings of the 24th annual meeting of the North American Primary Care Research Group*. Kansas City, Mo: North American Primary Care Research Group; 1996.
- Carroll JC, Brown JB, Reid AJ. Female family physicians in obstetrics: achieving personal balance. *Can Med Assoc J* 1995;153(9):1283-9.
- Lofsky S, OMA Section on General and Family Practice. Family practice obstetrics in Ontario revisited. *Ont Med Rev* 1995;62(5):41-6.
- Levitt C, Khanlou N, Kaczorowski J, Feldman P, Guibert R, Goulet F, et al. Attitudes toward obstetrics training. Residents surveyed at McGill University and University of Montreal. *Can Fam Physician* 1997;43:239-46.
- Lane CA, Malm SM. Innovative low-risk maternity clinic. Family physicians provide care in Calgary. *Can Fam Physician* 1997;43:64-9.