The Ontario Family Medicine Residents Cohort Study: factors affecting residents' decisions to practise obstetrics

Research

Recherche

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This article has been peer reviewed.

CMAJ 2002;166(2):179-84

Abstract

Background: The number of family physicians practising obstetrics in Canada is declining. On the assumption that factors related to the obstetrics training of family medicine residents may be influencing this trend, we conducted a cohort study of residents' stated intentions with regard to practising obstetrics, their educational experiences and their subsequent obstetric practice.

Methods: We followed a cohort consisting of all residents who enrolled in family medicine residency programs in Ontario in 1994 and 1995. The data, collected by mail-in survey at entry to, during and 2 years after completion of the 2-year training programs, consisted of residents' characteristics, stated plans during residency to practise obstetrics, obstetric experiences during training, attitudes and opinions related to obstetrics, and actual practice 2 years after completion of residency. We used logistic regression to determine the factors influencing whether a family physician practises obstetrics after graduation.

Results: Of the 498 residents who started programs in 1994 and 1995, 480 were eligible for inclusion, although not all of those eligible responded to the various surveys. At entry into the residency programs, 216 (52%; 95% confidence interval [CI] 47–57%) of the 411 respondents expressed an intention to practise obstetrics. By the end of residency, the proportion intending to practise obstetrics had fallen to 17% (95% CI 13–22%; 46 of 274 respondents), and only 16% (95% CI 12% to 20%) were actually practising intrapartum obstetrics (i.e., delivering babies) 2 years later. The proportions of residents in the 7 Ontario family medicine programs who were actually practising obstetrics 2 years later ranged from 2% of those from the University of Western Ontario to 38% of those from Thunder Bay. Three factors were independently associated with practising intrapartum obstetrics 2 years after completing residency: intention at the end of residency to practise intrapartum obstetrics (odds ratio [OR] 11.7, 95% CI 3.1–44.7, $p = 0.001$), not having the opinion that intrapartum care is too disruptive of personal life (OR 9.1, 95% CI 1.5–55.5, $p = 0.02$) and practising in a community of 15 000 or fewer people (OR 6.0, 95% CI 1.8–19.4, $p = 0.003$).

Interpretation: Residents who have positive attitudes toward obstetrics at the end of their training and who intend at that time to perform deliveries are more likely to be doing so 2 years later, especially if they practise in communities of 15 000 or fewer people.

The number of family physicians practising obstetrics in Canada is declining.[1–4] The proportion of family physicians and general practitioners in Canada who reported attending deliveries decreased from 68.4% in 1983 to 46.1% in 1988.[3] According to the 1997 Janus Project survey of the College of Family Physicians of Canada[4] (a project involving periodic national surveys of family physicians), 20% of all Canadian family physicians provided intrapartum care (i.e., delivered babies) in that year. However, the proportion varied widely across the country: 36% in British Columbia, approximately 32% in each of the Prairie

provinces, 23% in Ontario, 9% in Quebec and 25% in the Atlantic provinces.

The reasons given by physicians for not practising obstetrics include disruption of personal and professional life, fear of malpractice suits and cost of protection against such suits, inadequate monetary reimbursement, and lack of confidence or concerns about insufficient training.[3,5–7] In addition, demographic trends have an influence on the overall decline. As family physicians age, they discontinue intrapartum care to avoid the physical toll of late-night deliveries and the stress of managing potential complications. In the past, this shift did not pose a problem, as young family physicians entering the practice filled the gap. However, over the past 2 decades family physicians are giving up intrapartum care earlier in their careers and fewer recent graduates are choosing to practise obstetrics. Furthermore, in recent years graduating family medicine residents have tended not to enter full-time practice immediately, instead taking up temporary locum tenens positions for their first few years in practice.[8]

In Canada, pregnant women can choose from among 3 types of health care providers for obstetric care: obstetricians, family physicians and midwives. Midwives, of whom there are relatively few, are licensed to practise independently in only some provinces; they usually have access to obstetric or surgical backup. The decrease in the number of family physicians providing intrapartum care further limits the choice of caregiver. The problem can be especially acute in rural areas, where obstetricians and midwives are rarely available, although the decline in provision of obstetric care by family physicians has been less pronounced in rural communities.[9]

Concern has been expressed about the reduced availability of primary care services and the need to address such trends in planning for population health care needs.[10,11] The decrease in the number of family physicians who provide obstetric care is of concern for provincial ministries of health, because they generally pay more for care provided by obstetricians and they have a responsibility to ensure that the full range of care is available to everyone in their jurisdictions. It may also create stress for midwives, who may experience higher demand for their services and who may not feel comfortable practising in rural areas without supportive backup services. This situation presents a challenge for the discipline of family medicine, which has developed and promoted as its fundamental principle the concept of comprehensiveness of care for all members of the family. It also poses problems for family medicine training programs, which are required by accreditation bodies to demonstrate effective educational experiences in low-risk obstetrics for all residents. Quality of care is also a consideration: several studies have shown that family physicians providing intrapartum care have lower intervention rates than obstetricians and as good or better outcomes for comparable low-risk patients.[12–15]

We set out to identify the possible causes for the trend toward family physicians giving up obstetrics by first determining the intentions of residents as they entered their training programs and then following them through the programs and into practice. In addition to determining the factors affecting the decline, we hoped to discover what, if anything, can be done by family medicine training programs to reverse it.

Methods

The study population consisted of all 498 family medicine residents who started training in Ontario programs in 1994 and 1995. The cohort was assembled at entry into residency training and was followed through the 2-year program and then for 2 years into practice.

The cohort was surveyed 3 times during residency: at entry and at the end of the first and second years. A fourth survey was conducted 2 years after completion of residency. During residency, the surveys were mailed in batches to the offices of the program directors, who distributed them to the residents. The residents returned the questionnaires directly to the investigators in a stamped, pre-addressed envelope. The questionnaires were formatted as booklets, and follow-up questionnaires were sent to nonresponders 3 and 8 weeks after the initial mailing.[16] For the postgraduation survey, addresses were obtained through the College of Family Physicians of Canada database and the *Canadian Medical Directory*. The study design was reviewed and approved by the Queen's University Research Ethics Board.

We report here data on whether physicians included intrapartum care in their practices 2 years after completing residency. We also explore the effect of physician characteristics, training experiences and attitudes on provision of intrapartum care 2 years into practice. In analyzing the data, we first calculated response rates, overall and for each contact point. We then determined, for the overall cohort and for each university, the proportion of residents who stated with certainty that they would include intrapartum care in their future practice and the proportion who were actually delivering babies 2 years into practice. Using 2×2 contingency tables we calculated χ^2 values, odds ratios (ORs), confidence intervals (CIs) and p values for the association between characteristics, residency training and attitudes and whether the residents were delivering babies 2 years into practice. We used logistic regression to control for potential confounding and correlation among the variables: the dependent variable was whether or not the physician was practising intrapartum obstetrics, and the independent variables were the factors that were significantly associated with the dependent variable, as well as physician sex and age. All of the independent factors were entered into the analysis at the same time. Factors were retained if they remained significant at $p < 0.05$. Categorical variables with more than 2 categories were set up with dummy variables.

Results

Of the 498 residents entering family medicine residency programs in Ontario in 1994 and 1995, 11 were excluded because they were with the Department of National Defense Program and thus unable to make plans to include obstetrics in their practice during the first 2 years after completing residency. Seven others were excluded because they were released from the program before completion. Therefore, the cohort consisted of 480 residents. Overall and program-specific response rates at each time point in the study are presented in Table 1.

The outcome of primary interest in this study was whether physicians were practising intrapartum obstetrics 2 years after completing their residency training (Table 2). Overall, 16% (95% CI 12% to 20%) of physicians were practising intrapartum care 2 years after completing residency, the program-specific rates ranging from 2% for the University of Western Ontario to 38% for the Thunder Bay program.

Physician characteristics, obstetric experiences during training and responses to opinion statements are presented in Table 3, along with the level of association of these variables with actual practice of intrapartum obstetrics 2 years after graduation. Three variables were independently associated with practising intrapartum obstetrics 2 years after completion of residency (Table 4): stated intention at the end of residency to practise intrapartum obstetrics (OR 11.7, 95% CI 3.1–44.7, $p = 0.001$), not having the belief that providing intrapartum care is too disruptive of personal life (OR 9.1, 95% CI 1.5–55.5, $p = 0.001$), and practising in a community of 15 000 or fewer people (OR 6.0, 95% CI 1.8–19.4, $p = 0.003$). As part of a sensitivity analysis we ran 2 other logistic regressions to assess the robustness of these conclusions. First, we removed the age and sex variables, which were not significant in the bivariate analysis, and then we added other factors that might have been predictive of obstetric practice (marital status, whether the physician had children and the university of graduation). In both of these analyses the 3 factors listed above remained significantly associated with the outcome, but none of the other factors were associated with outcome.

We also evaluated factors relating to residents' stated intention, at entry into and completion of the residency program, to practise intrapartum obstetrics, using the same process of bivariate analysis followed by logistic regression described above. The factors independently associated with residents' stated intentions are shown in Table 4.

Although the number of deliveries performed during residency was positively associated with stated intention to practise intrapartum obstetrics, 2 other training factors were not related to stated intentions: delivering babies with family physicians and following a minimum of 6 patients through their prenatal course to delivery.

Table 1: Response rates at 4 contact points during a cohort study of family medicine residents who started their residency programs in Ontario in 1994 and 1995

		No. (and %) of students responding			
Residency program	No. of residents	At beginning of residency	At end of first year of residency	At end of second year of residency	2 years after graduation
McMaster University	65	56 (86)	49 (75)	29 (45)	43 (66)
University of Ottawa	64	56 (88)	50 (78)	38 (59)	40 (62)
Queen's University	53	53 (100)	51 (96)	43 (81)	47 (87)
Sudbury	24	23 (96)	23 (96)	20 (83)	21 (88)
University of Toronto	182	147 (81)	130 (71)	88 (48)	103 (57)
Thunder Bay	22	20 (91)	20 (91)	13 (59)	16 (73)
University of Western Ontario	70	56 (80)	54 (77)	43 (61)	45 (64)
Overall*	480	411 (86)	377 (78)	274 (57)	315 (66)

*The 69 residents who did not respond to the entrance questionnaire were not surveyed subsequently. However, the total number of residents (480) was used as the denominator for calculating the overall response rate at all time points.

Table 2: Intention to practise intrapartum obstetrics* and actual practice of intrapartum obstetrics 2 years after graduation

	No. (and %) of students			
Residency program	Intention at beginning of residency	Intention at end of first year of residency	Intention at end of second year of residency	Practice 2 years after graduation
McMaster University	26/56 (46)	20/49 (41)	1/29 (3)	6/43 (14)
University of Ottawa	31/56 (55)	20/50 (40)	11/38 (29)	11/40 (28)
Queen's University	38/53 (72)	24/51 (47)	11/43 (26)	11/47 (23)
Sudbury	10/23 (43)	9/23 (39)	3/20 (15)	5/21 (24)
University of Toronto	68/147 (46)	36/130 (28)	11/88 (12)	9/103 (9)
Thunder Bay	14/20 (70)	10/20 (50)	6/13 (46)	6/16 (38)
University of Western Ontario	29/56 (52)	20/54 (37)	3/43 (7)	1/45 (2)
Overall	216/411 (52)	139/377 (37)	46/274 (17)	49/315 (16)

*Students not indicating an intention to practise intrapartum obstetrics either said they had no intention of doing so, were uncertain about their intentions or did not respond to the question at all.

Table 3: Characteristics, training and attitudes of those who responded 2 years after graduation

Factor	No. of respondents	No. (and %) practising intrapartum obstetrics	OR (and 95% CI) for practising intrapartum obstetrics	*p* value
Sex				
Female	171	32 (19)	1.7 (0.9–3.2)	0.13
Male	144	17 (12)		
Age, yr				
< 30	135	25 (18)	1.4 (0.8–2.6)	0.34
≥ 30	180	24 (13)		
Size of community where attended high school				
< 15 000	55	11 (20)	1.4 (0.7–3.0)	0.48
≥ 15 000 people	260	38 (15)		
Marital status				
Married or common law	223	38 (17)	1.5 (0.7–3.1)	0.34
Not married or common law	92	11 (12)		
Children				
Yes	125	22 (18)	1.3 (0.7–2.4)	0.51
No	190	27 (14)		
Size of community in which practice is located				
≤ 15 000	62	22 (35)	4.7 (2.5–9.2)	0.001
> 15 000	253	27 (11)		
Stated intention to practise intrapartum obstetrics				
At beginning of residency				
Yes	171	39 (23)	3.8 (1.8–8.0)	0.001
No	144	10 (7)		
At end of residency				
Yes	46	23 (50)	9.4 (4.6–18.0)	< 0.001
No	269	26 (10)		
Experience during residency				
Attended OPD clinics on obstetrics rotation				
Yes	159	20 (12)	0.6 (0.3–1.2)	0.19
No	156	29 (18)		
Family medicine rotation included following at least 6 women to delivery				
Yes	261	44 (17)	1.7 (0.6–4.9)	0.48
No	54	5 (9)		
No. of deliveries performed				
≤ 40	146	16 (11)	1.0	
41–80	101	16 (16)	1.5 (0.7–3.2)	0.35
> 80	68	17 (25)	2.7 (1.3–5.8)	0.014
Attitudes at 2 years after graduation				
Intrapartum care is too disruptive of professional life				
Yes	244	19 (8)	0.1 (0.1–0.2)	0.001
No	71	30 (42)		
Intrapartum care is too disruptive of personal life				
Yes	281	32 (11)	0.1 (0.1–0.3)	0.001
No	34	17 (50)		
Intrapartum care is rewarding				
Yes	288	48 (17)	10.6 (1.4–79.3)	0.020
No	27	1 (4)		

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Table 3: Concluded

Factor	No. of respondents	No. (and %) practising intrapartum obstetrics	OR (and 95% CI) for practising intrapartum obstetrics	*p* value
Remuneration for intrapartum care is inadequate				
Yes	298	44 (15)	0.4 (0.1–1.2)	0.20
No	17	5 (29)		
Residency prepared me well for providing intrapartum care				
Yes	201	41 (20)	3.4 (1.5–7.5)	0.003
No	114	8 (7)		
Childbirth is a natural process, requiring minimal intervention				
Yes	279	46 (16)	2.2 (0.6–7.4)	0.30
No	36	3 (8)		
High CMPA fees mean that intrapartum care is not worthwhile				
Yes	271	33 (12)	0.2 (0.1–0.5)	0.001
No	44	16 (36)		
Risk of malpractice for intrapartum care is too high				
Yes	237	22 (9)	0.2 (0.1–0.3)	0.001
No	78	27 (35)		
Midwives have a negative impact on family physicians practising intrapartum care				
Yes	211	31 (15)	0.8 (0.4–1.6)	0.66
No	104	18 (17)		

Note: OPD = outpatient department, CMPA = Canadian Medical Protective Association.

Interpretation

Among physicians who started family medicine training in Ontario in 1994 and 1995, only 16% were providing intrapartum care 2 years after graduation (i.e., in 1998 and 1999). These data are similar to those from the 1997 Janus Project survey, which found that 20% of all Canadian family physicians provided intrapartum care at that time.[4] These numbers suggest that the downward trend in family medicine obstetrics will continue, or at least is unlikely to improve, unless more graduating residents choose to deliver babies.

We have described the intentions of residents during their training with regard to intrapartum obstetrics, what they actually did once they were in practice and the factors that appear to be associated with their decisions on this subject. From these associations, we hoped to determine if there are actions that the medical education system, both undergraduate and postgraduate, could take to increase the number of graduates who provide intrapartum care. A closer look at Table 4 suggests some strategies.

First, residents' intentions at the end of residency are important. In general, residents who are completing their residency program plan to deliver babies if one or more of the following conditions are met: they entered their training program with that intention, they performed a sufficient number of deliveries (more than 40) during their training, and they do not believe that delivering babies is too disruptive of personal life. Therefore, program directors should assess residents' intentions at entry into residency and ensure that those who plan to practise obstetrics participate in a sufficient number of deliveries; the directors should also provide a positive environment with good role models.

Second, a resident's attitude toward intrapartum care by the end of residency is important in determining what he or she will be doing 2 years later. It is striking that not believing that delivering babies is too disruptive of personal life is an important determinant at each point along the training path and also 2 years into practice. Most of the residents who enter training programs with plans to practise obstetrics finish their programs not planning to do so, and 2 years later are indeed not doing so (Table 2). It appears that experiences during residency training have a negative impact on residents that extends into their practice choices after graduation. However, despite experiencing insufficient numbers of deliveries, along with a decreasing interest by family physicians in providing intrapartum care and escalating malpractice insurance premiums, some residents complete their training intending to deliver babies, and these are the doctors providing intrapartum care 2 years into practice.

It appeared that having residents deliver babies with family physician preceptors and requiring residents to follow a minimum of 6 women through pregnancy to term, an accreditation standard of the College of Family Physicians of Canada, had very little impact on intentions to practise

Table 4: Factors associated with intentions at the end of residency and actual practice of intrapartum obstetrics

Factor	OR (and 95% CI)	*p* value
Associated with intention, at end of residency, to practise intrapartum obstetrics		
Stated intention at beginning of residency to practise intrapartum obstetrics	5.5 (1.7–17.8)	0.004
No. of deliveries performed during residency		
≤ 40	1.0	
41–80	5.4 (1.6–17.9)	0.006
> 80	5.9 (1.6–21.2)	0.006
Not having the opinion that practising intrapartum obstetrics is too disruptive of personal life	5.1 (1.9–14.2)	0.001
Associated with practising intrapartum obstetrics 2 years after graduation		
Stated intention at end of residency to practise intrapartum obstetrics	11.7 (3.1–44.7)	0.001
Not having the opinion that practising intrapartum obstetrics is too disruptive of personal life	9.1 (1.5–55.5)	0.020
Practising in a community of ≤ 15 000	6.0 (1.8–19.4)	0.003

obstetrics. Residents who had these experiences were not more likely to state an intention to practise intrapartum obstetrics or to actually do so. Only the actual number of deliveries seemed to matter (Table 3). Perhaps if role models and emphasis on continuity of care were directed at residents who enter their training programs with strong intentions to practise obstetrics, a larger proportion of residents would complete their training still planning to do so.

Third, residents who enter practice in rural communities were more likely to be providing intrapartum care 2 years later. For several reasons, this result is not surprising. Physicians who take up rural practice are probably more likely to want to provide (and to be expected to provide) a diverse scope of practice and will probably have directed their training accordingly. Nonetheless, of the 62 residents who took up practice in communities of 15 000 or fewer people, only 22 were providing intrapartum care at the time of the follow-up survey. For residents who do not intend to practise in small communities, residency programs must focus on the other 2 factors: fostering positive attitudes toward obstetrics and finding ways to increase, by the end of training, the numbers intending to offer intrapartum care.

This study suffers from the problems inherent to survey-based research. Response rates differed over the course of the study. However, the overall response rate of 66% at the end of the study, 4 years after the first survey, is reasonable. In addition, nearly 50% of the cohort completed the questionnaire at each point in the study. We believe that our sample accurately reflects the total Ontario cohort, especially because the actual number of physicians providing intrapartum care was similar to that reported in other studies.[4] In the reporting of attitudes and behaviours, it is difficult to verify accuracy, but accuracy is probably less of a problem for questions concerning actual practice of intrapartum care and size of the community in which the practice is located.

Competing interests: None declared.

Contributors: All authors contributed to conception and design of the study, analysis and interpretation of the data, and critical revision of the article. In addition, Marshall Godwin drafted the article and Rachelle Seguin was responsible for acquiring the data.

Acknowledgements: We acknowledge the Physicians' Services Incorporated Foundation for the research grant that made this 5-year cohort study possible, the program directors in the family medicine residency programs in Ontario for their cooperation and assistance, the family medicine residents who completed the questionnaires over the course of the study, and our research assistants, Lucia Ruhland and Xiaofang Ni.

References

1. Klein M, Reynolds JL, Boucher F, Malus M, Rosenburg E. Obstetrical practice and training in Canadian family medicine: conserving an endangered species. *Can Fam Physician* 1984;30:2093-9.
2. Rosser WW, Muggah H. Who will deliver Canada's babies in the 1990's? *Can Fam Physician* 1989;35:2419-22,2424.
3. Woodward CA, Rosser W. Effect of medicolegal liability on patterns of general and family practice in Canada. *CMAJ* 1989;141:291-9.
4. College of Family Physicians of Canada. *The Janus Project. The CFPC National Family Physician Survey — summary report*. Toronto: The College; 1998. Available: www.cfpc.ca/janus/janussumcontents.htm.htm.
5. Buckle D. Obstetrical practice after a family medicine residency. *Can Fam Physician* 1994;40:261-8.
6. 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.
7. Reid AJ, Carroll JC. Choosing to practice obstetrics. What factors influence family practice residents? *Can Fam Physician* 1991;37:1859-67.
8. Godwin M, Hodgetts G, Wilson R, Pong R, Najgebauer E. Practice choices of graduating family medicine residents. *Can Fam Physician* 1998;44:532-6.
9. Reid AJ, Grava-Gubins I, Carroll JC. Family physicians in maternity care. Still in the game? Report of the CFPC's Janus Project. *Can Fam Physician* 2000;46:1022-5.
10 Woodward CA, Williams AP, Cohen M, Ferrier B. Closed and restricted practices. Recent family medicine graduates place limits on services. *Can Fam Physician* 1997;43:1541-7.
11. Carroll JC, Brown JB, Reid AJ. Female family physicians in obstetrics: achieving personal balance. *CMAJ* 1995;153:1283-9. Abstract available: www.cma.ca/cmaj/vol-153/issue-9/1283.htm
12. Klein M, Lloyd I, Redman C, Bull M, Turnbull AC. A comparison of low-risk pregnant women booked for delivery in two systems of care: shared-care (consultant) and integrated general practice unit. I. Obstetrical procedures and neonatal outcomes. *Br J Obstet Gynaecol* 1983;90:118-22.
13. Klein M, Lloyd I, Redman C, Bull M, Turnbull AC. A comparison of low-risk pregnant women booked for delivery in two systems of care: shared-care (consultant) and integrated general practice unit. II. Labour and delivery management and neonatal outcome. *Br J Obstet Gynaecol* 1983;90:123-8.
14. Reid AJ, Carroll JC, Ruderman J, Murray MA. Differences in intrapartum obstetric care provided to women at low risk by family physicians and obstetricians. *CMAJ* 1989;140:625-33.
15. MacDonald SE, Voaklander K, Birtwhistle RV. A comparison of family physicians' and obstetricians' intrapartum management of low-risk pregnancies. *J Fam Pract* 1993;37:457-62.
16. Dillman DA. *Mail and telephone surveys: the Total Design Method*. New York: Wiley and Son; 1978.

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