

Does experience or delivery volume of family physicians predict maternal and newborn outcomes?

Our article showing that maternal and newborn outcomes at delivery were similar for physicians with high and low obstetric volume¹ generated speculation among our colleagues that perhaps volume and outcomes were correlated with experience. To answer this question, we re-analyzed the original data to determine if a proxy measure of experience — years in practice — was associated with maternal and infant outcomes.

We divided the family physicians in our study into 3 groups on the basis of date of graduation from medical school: 1950 to 1977 (49 doctors, 1403 births), 1978 to 1987 (46 doctors, 1572 births) and 1988 to 1995 (53 doctors, 1458 births). We redid the logistic regression as described in our paper,¹ using years of practice and adjusting for delivery volume and maternal and fetal characteristics. We used ≤ 7 as the cutoff for 5-minute Apgar scores in both analyses.

There were statistically significant differences in parity and demographic characteristics of the mothers according to family physicians' time since graduation.

Physicians with more years since graduation had more multiparous women in their practices than physicians with fewer years since graduation (52% v. 44%, $p < 0.001$). The proportion of white women was also different among physician groups (40% for the group with the most years since graduation, 51% for the intermediate group and 38% for the group with the fewest years since graduation, $p < 0.001$). Physicians with the most years since graduation attended more deliveries for women over 35 years of age than physicians with the fewest years since graduation (23% v. 19%, $p = 0.002$).

Our original paper¹ showed no difference in maternal and infant outcomes by physician volume. When we factored in years since graduation, we found significantly higher rates of admission to any special care nursery and lower 5-minute Apgar scores for physicians with fewer years since graduation than for physicians with more years since graduation at our original level of statistical significance of 0.05, after adjustment for physician delivery volume, maternal demographic characteristics and maternal risk factors (Table 1). However, delivery volume was still not a statistically significant predictor of outcomes. Therefore, it seems that

years of experience has a greater effect on outcomes than volume of deliveries. We believe that in analyzing the data according to physician experience, we are considering an outcome of possible clinical importance because, although Apgar scores are subjective, the responsible family physician requires a pediatrician to support an admission to a special care nursery. But because the odds ratios are not large and the cutoff level of significance is only 0.05, it would be prudent not to overstate the association between experience and newborn outcome. We suggest that when researching the outcome of birth according to delivery volume or when addressing other important outcomes in physician maternity and newborn practice, experience as indicated by years since graduation or other proxies should be taken into consideration. The recommendation of the Society of Obstetricians and Gynaecologists of Canada, the College of Family Physicians of Canada and the Society of Rural Physicians of Canada on number of births to maintain competence still stands:² that is, there is no minimum number of births recommended to maintain competency. The consistency in outcomes by delivery volume in our study is reassuring, and we believe it is a

Table 1: Multivariate odds ratios for maternal and newborn outcomes adjusted for physician's years since graduation, physician's volume of births, and maternal and newborn characteristics

Outcome and physician's year of graduation	No. (and %) of births*	Crude OR (and 95% CI)	<i>p</i> value	Adjusted OR (and 95% CI)†‡	<i>p</i> value
Maternal morbidity§					
1950–1977	246 (17.5)	1.00		1.00	
1978–1987	262 (16.7)	0.94 (0.78–1.14)	0.53	0.90 (0.74–1.10)	0.31
1988–1995	236 (16.2)	0.91 (0.75–1.10)	0.34	0.89 (0.72–1.09)	0.25
5-min Apgar score ≤ 7					
1950–1977	39 (2.8)	1.00		1.00	
1978–1987	48 (3.1)	1.10 (0.72–1.69)	0.66	1.06 (0.66–1.69)	0.82
1988–1995	70 (4.8)	1.76 (1.18–2.62)	0.005	1.71 (1.10–2.65)	0.016
Admission to NICU or SCU					
1950–1977	145 (10.3)	1.00		1.00	
1978–1987	173 (11.0)	1.07 (0.85–1.35)	0.55	1.04 (0.79–1.37)	0.79
1988–1995	189 (13.0)	1.29 (1.02–1.62)	0.029	1.41 (1.07–1.85)	0.014

Note: OR = odds ratios, CI = confidence interval, NICU = neonatal intensive care unit, SCU = special care unit.

*Total numbers of births: 1403 for 1950–1977 category, 1572 for 1978–1987 category and 1458 for 1988–1995 category.

†Some data were missing from 186 records, so only 4258 births are included in the multivariate models.

‡Adjusted for parity, ethnicity, gestational age, head circumference at birth, lone parent, gestational diabetes, pregnancy-induced hypertension, birth weight, physician's years since graduation and physician's volume of deliveries.

§Presence of one or more of the following conditions: postpartum urinary tract infection, postpartum hemorrhage, intrapartum or postpartum pyrexia, complications of cesarean section or perineal wounds, third- or fourth-degree tears.

result of ongoing professional development and quality assurance programs in our hospital. However, our results can be considered valid only for highly resourced centres such as ours.

Ann Kelly

Departments of Health Care
and Epidemiology and of Family
Practice

University of British Columbia
Vancouver, BC

Michael C. Klein

Department of Family Practice
University of British Columbia
Vancouver, BC

Janusz Kaczorowski

Departments of Family Medicine and of
Clinical Epidemiology and Biostatistics
McMaster University
Hamilton, Ont.

Stefan Grzybowski

Department of Family Practice
University of British Columbia
Vancouver, BC

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Anticoagulation

Jo-Anne Wilson and associates¹ claim that anticoagulation clinics provided better oral anticoagulation than family physicians, but these conclusions do not appear to be supported by their study results.

First, and notwithstanding the apparent statistical significance, the difference in the proportion of time that patients' international normalized ratio (INR) values were within the desired range was less (an absolute difference of only 6%, representing a relative difference of 8%) than the authors' predefined minimally clinically important difference (10% absolute, 20% relative). More-

over, with regard to this primary endpoint, patients under the care of family physicians fared far better (76%) than the authors expected they would in the care of specialty clinics (60%).

Second, there is clearly something amiss with the percentages of patients with high-risk INRs (mentioned in the abstract, the Results and Table 2): the difference between 30% and 40% for the sample sizes in this study would not be associated with a *p* value of 0.005. Indeed, this difference is not significant at all.

Third, selective emphasis on a subgroup that has been defined post hoc (new patients with target INR of 2.0 to 3.0; see Table 3) seems inappropriate. Are the authors implying that anticoagulation clinics are not as effective if the target INR is slightly higher or if the patient has previously received anticoagulants?

Finally, the authors give the impression that all of the measures of patient satisfaction favouring anticoagulation clinics were associated with a *p* value of 0.001. Again, this is simply not possible: some of the differences reported are not significant, and those that are significant are generally far more modest.

Overall, it appears that the anticoagulation therapy provided by family physicians in this study was clinically similar to that provided in the more expensive specialty clinics.

David Massel

University of Western Ontario
London Health Sciences Centre
London, Ont.

Reference

1. Wilson SJA, Wells PS, Kovacs MJ, Lewis GM, Martin J, Burton E, et al. Comparing the quality of oral anticoagulant management by anticoagulation clinics and by family physicians: a randomized controlled trial. *CMAJ* 2003;169(4):293-8.

Competing interests: None declared.

Very much like the concept of optimizing patient care by choosing the best methods of care on the basis of research findings. Having been a general practitioner for a number of years, as

well as acting in the capacity of a specialist, I recognize the differences in expectations placed upon these 2 types of medical practice.

Thus, it would be helpful if Jo-Anne Wilson and associates¹ could comment on what they perceive as the differences in anticoagulation services between the anticoagulation clinics and the family physicians' offices in their study. It would also be helpful to know how the model for anticoagulation monitoring used by family physicians differed from that used in the anticoagulation clinics. For example, who called the patient to convey INR results, and how often were patients seen during the anticoagulation period? In terms of optimizing care, do the authors feel that anticoagulation might be better managed if the physician were able to focus on just that aspect of care, rather than having to address multiple problems during the same visit (as is usually the case for family physicians)? With regard to patient education about anticoagulation, should information be provided by the physician or by other staff (e.g., nurses)? Finally, did the authors review the differences in cost between the 2 types of service?

All of these details might help in optimizing the model of anticoagulation care.

Patrick J. Potter

Department of Physical Medicine
and Rehabilitation
University of Western Ontario
London, Ont.

Reference

1. Wilson SJA, Wells PS, Kovacs MJ, Lewis GM, Martin J, Burton E, et al. Comparing the quality of oral anticoagulant management by anticoagulation clinics and by family physicians: a randomized controlled trial. *CMAJ* 2003;169(4):293-8.

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Jo-Anne Wilson and associates¹ suggest that centralized anticoagulation clinics perform better than, and are preferred by patients over, individual family physicians. However, it is not clear what management of anticoagulation by a family physician entails. As I