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Evaluation of a novel model for rural obstetric care

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Introduction: The group practice physicians in Marathon, a small rural community in northwestern Ontario, discovered general lifestyle dissatisfaction with the traditional model for obstetric practice. The old model of doing the follow-up and delivery for one's own patients created perceived onerous on-call responsibilities. The providers created a new model of obstetric care. This involved the local providers of obstetric care each taking 1 month of the year in rotation and following up any woman due in that month for prenatal and intrapartum services. This study is an investigation of patient and provider satisfaction with this model.
Methods: Patient survey: We surveyed all 73 women who received obstetric care under the new model during its first 14 months of implementation. We collected data on patient demographics and patients' satisfaction with their obstetric experience using Likert scale, yes/no and short-answer questions. Physician survey: We surveyed the 9 physicians of Marathon Family Practice using Likert scale, yes/no and short-answer questions. We collected information on demographics, history of involvement with obstetric service, and comparison of old and new models with regard to patient care, and professional and personal issues.
Results: Patient survey: The response rate was 56%. Of the respondents, 97% reported their expectations for their obstetric care were met, if not surpassed, and 100% were satisfied with their obstetric care. Physician survey: All the physicians responded and found the new model to cause less disruption of their family practice (Wilcoxon signed rank test, $p = 0.041$), to improve scheduling of personal activities ($p = 0.017$) and to improve their satisfaction with on-call hours ($p = 0.027$). Overall, the physicians were satisfied with the new model and preferred it to the old model.
Conclusion: This obstetric care model meets patients' expectations and provides patient satisfaction. It provides practitioners with an increased quality of life and greater satisfaction. It is a viable paradigm for the provision of obstetric care in the appropriate setting.

Introduction : Les médecins d'une pratique de groupe de Marathon, petite communauté rurale du Nord-Ouest de l'Ontario, a constaté une insatisfaction généralisée vis-à-vis du style de vie que lui imposait le modèle de pratique obstétricale classique. Les médecins percevaient comme très lourd sur le plan des heures de garde ce modèle où chacun assure le suivi et l'accouchement de ses propres patientes. Les médecins ont donc imaginé un nouveau modèle de soins obstétricaux dans lequel les médecins de la localité qui font de l'obstétrique assument à tour de rôle un mois de garde pour faire le suivi des femmes dont l'accouchement est prévu au cours du mois en question. Pour ces patientes et durant ce mois, les médecins fournissent les services prénataux nécessaires et veillent aux accouchements. La présente étude s'est penchée sur le degré de satisfaction des patientes et des médecins à l'endroit de ce modèle.
Méthodes : Sondage auprès des patientes : nous avons interrogé les 73 femmes qui ont reçu des soins obstétricaux selon le nouveau modèle durant ses 14 premiers mois d'application. Nous avons recueilli les données démographiques des patientes et mesuré leur degré de satisfaction à l'endroit de leur expérience obstétricale au moyen de

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l'échelle de Likert et de questions brèves à réponse oui ou non. Sondage auprès des médecins : nous avons interrogé les neuf médecins de la clinique de médecine familiale de Marathon en utilisant l'échelle de Likert et des questions brèves à réponse oui ou non. Nous avons recueilli des données démographiques et des données sur leur expérience en obstétrique, et nous avons ensuite comparé le nouveau modèle à l'ancien pour ce qui est des soins aux patientes et des enjeux d'ordre professionnel et personnel.

Résultats : Sondage auprès des patientes : le taux de réponse a été de 56 %. Parmi les répondantes, 97 % ont déclaré que leurs attentes en matière de soins obstétricaux avaient été comblées sinon dépassées et 100 % se sont dites satisfaites de leurs soins obstétricaux. Sondage auprès des médecins : tous les médecins ont participé et ont noté que le nouveau modèle perturbait moins leur pratique en médecine familiale (test de Wilcoxon pour observation appariée, p = 0,041), facilitait la planification de leurs activités personnelles (p = 0,017) et améliorait leur degré de satisfaction vis-à-vis des heures de garde (p = 0,027). Dans l'ensemble, les médecins se sont dits satisfaits du nouveau modèle et l'ont préféré à l'ancien.

Conclusion : Ce modèle de soins obstétricaux répond aux attentes des patientes et les satisfait. Il offre aux professionnels de la santé une meilleure qualité de vie et un degré de satisfaction plus élevé. Dans un contexte approprié, il s'agit d'un modèle viable pour assurer les soins obstétricaux.

INTRODUCTION

A clear trend in Canada is the ongoing decline of family practice physicians, including rural doctors, providing comprehensive obstetric care (prenatal care, delivery and postpartum care).[1–3] Various factors have been implicated in this ongoing attrition including the negative impact of obstetric practice on physician lifestyle,[4–6] the risk of complications and litigation,[6] rising malpractice insurance fees,[6,7] inadequate remuneration[6,7] and insufficient exposure during training.[4,6,7] Furthermore, the number of rural hospitals offering obstetric services has decreased substantially.[3,8]

It has been recognized that continued provision of rural obstetric care is important to maximizing birth outcomes. Nesbitt and colleagues[9] found that women who must travel for delivery because their community no longer provides labour and delivery services have poorer outcomes.

A variety of approaches have been tried in rural areas to reduce the negative impacts of practising obstetrics on physician lifestyle and to improve the retention and recruitment of physicians into this service. Shared care models either linking obstetric coverage to emergency department on-call duties,[10] or having 1-week blocks of being responsible for managing both antepartum clinics and any deliveries[11] have been developed in rural Ontario. Both models have shown reasonable patient satisfaction with obstetric care and enhanced physician satisfaction with the practice of obstetrics.

Marathon, a small rural community in northwestern Ontario, reopened its previously closed obstetric service in 1996 and now provides low-risk deliveries without cesarean delivery capabilities. Marathon has a population of 3863 (2006 census) and an obstetric catchment population of about 7000. Its tertiary referral centre for obstetric care is Thunder Bay, Ont., 300 km away. Before 2002, the local model of obstetric care was a typical one, with physicians following up and performing deliveries for the patients of their own practice. Discussions ensuing after the attrition of an obstetric care provider determined that the remaining providers were dissatisfied with the model. It was perceived as too onerous on their lifestyle, as remaining on call for their obstetrics patients was a time commitment that had an adverse impact on their family life, time off and holiday planning. It also caused an uneven distribution of obstetrics patients among providers, which for some meant minimizing the opportunities to maintain skills. The provision of obstetric services was again in jeopardy.

The group practice physicians in Marathon developed a new paradigm designed to maximize patient continuity, create parity in obstetrics patient loads and minimize the difficulty of being on call for extended, unpredictable periods. The model devised was for obstetrics providers to each take 1 month of the year in rotation. Any woman enrolled in the practice who became pregnant was assigned to the physician on call for the month of her due date. To integrate the important element of continuity of care,[12] this physician would then follow up the woman throughout her pregnancy, providing prenatal care and intrapartum

services. After delivery and hospital discharge, the care of the patient and the newborn would be resumed by the regular family physician. The group had hoped that the implementation of this model would provide patients a satisfactory prenatal and birthing experience while improving the lifestyle and satisfaction of the providers, ultimately enhancing their obstetrics program's viability. This paper is an investigation of those goals through examining patient satisfaction with the new model and provider satisfaction and preference between the old and new obstetrics models.

METHODS

Patient surveys

We created 2 surveys, one for women who had received prenatal care and had delivered in Marathon, and the other for women who had received prenatal care in Marathon, but had delivered elsewhere. The surveys were identical, except that the latter had no questions pertaining to delivery satisfaction. A large component of the surveys came from a previously validated questionnaire, created by Omar and colleagues,[13] entitled the Patient Expectation and Satisfaction with Prenatal Care instrument.

Women were asked to respond to a series of questions, using a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree), on their expectations and satisfaction with respect to a variety of aspects of their obstetric care. Questions also explored demographics, obstetric history, complications in birth outcomes, Marathon as a choice for future deliveries, complaints and any suggestions for improvement of the obstetric services.

Physician survey

Physicians were asked about their demographics and history of involvement in obstetric service. They were asked questions contrasting the old and new obstetrics model with regard to patient care, as well as questions pertaining to professional and personal issues. Yes\no questions, with opportunities to comment, explored quality of life, obstetrics model preference, satisfaction with the new model and suggestions for improvement.

Participants

We mailed surveys to all patients who had received obstetric care under the new system in Marathon who had delivered during the first 14 months of its implementation.

Nine physicians of the Marathon Family Practice participated.

The Lakehead University Research Ethics Board reviewed and approved this study and all the survey instruments.

Analysis

We analyzed the results using SPSS 10.0 (SPSS Inc.). We used χ^2 test and Wilcoxon signed rank test, for nonparametric data, to evaluate for statistical significance.

RESULTS

Patient surveys

Of the 73 women surveyed, 41 returned completed questionnaires. Nineteen of the 34 (56%) women who had delivered their babies in Marathon responded to the survey. Similarly, 22 of the 39 (56%) women who had delivered their babies elsewhere responded.

Of the respondents, 40 (97%) reported that their obstetric care expectations were met if not surpassed. All respondents agreed (somewhat agree 8%, agree 15%, strongly agree 77%) that they were satisfied with their obstetric experience in Marathon (Table 1).

Of the 22 women who delivered elsewhere, 50% were forced to do so because of underlying or pregnancy-related health concerns that were considered too high risk for delivery locally, and the other 50% chose to do so for personal reasons, such as wanting better access to other medical options or family support.

Of the women who delivered elsewhere, 55% stated they would choose to deliver in Marathon with future pregnancies. Of the group that did deliver in Marathon, 90% indicated that they would choose to deliver there again.

Table 1. Patient responses to Likert question of being satisfied with overall obstetric care experience in Marathon

Likert category	Response frequency (%)	Cumulative %
Strongly agree	30 (77)	77
Agree	6 (15)	92
Somewhat agree	3 (8)	100
Somewhat disagree	0 (0)	—
Disagree	0 (0)	—
Strongly disagree	0 (0)	—

Physician survey

All 9 physicians of the Marathon Family Practice participated and returned a completed survey. We excluded from the survey analysis data from 2 physicians because neither had worked in the new obstetrics model.

Of the 7 physicians who had worked in both systems, all agreed that obstetrics patients were comfortable with them as obstetric care providers, even when they were not the patient's regular family doctor (mean score of 5, standard deviation 0.58, on Likert 6-point scale). They also replied affirmatively when asked if they believed that patients were satisfied with the new model of care (mean score of 5, standard deviation 0).

Physicians perceived the new model to cause significantly less disruption of their family practice compared with the old model ($p = 0.041$) as indicated by a Wilcoxon signed rank test analysis of questions requiring Likert 6-point scale answers. The new obstetrics system was seen as significantly improving the ease of scheduling personal activities ($p = 0.017$). As well, there was a significant difference in the increased level of satisfaction with the number of on-call hours going from the old model to the new ($p = 0.027$). There was no statistically significant difference found in the physician perception between the 2 systems in the following: how frequently they would perform deliveries to maintain competence ($p = 0.52$), the medicolegal risk involved ($p = 0.32$), the level of organization ($p = 0.10$), or the level of work-related stress encountered ($p = 0.34$).

Six of the physicians saw the quality of their personal life improve under the new system (yes/no question). Reasons cited (written comments) included increased predictability, decreased time on call, greater freedom and flexibility, less cancellation of clinics due to obstetrics, as well as missing fewer of the deliveries of their obstetrics patients. The same 6 preferred the new system to the old (yes/no question) for the same reasons listed above as well as the greater assurance of being involved regularly with obstetrics patients. These 6 were also satisfied with the length of the on-call sessions with the new system (yes/no question).

In this study, 1 physician was equivocal with regard to an improvement in their quality of life (yes/no question and comments). The physician perceived the new system as cramming the stress and inconvenience of doing deliveries into 1 month, making it much more physically challenging (written comments). For the same reason this physician did not prefer one system to the other (yes/no question and comments) and was not happy with the length of sessions on call, but stated that there was no ideal length of time to be on call for obstetrics. Overall, this physician was somewhat satisfied with the new model (Likert 6-point scale, score of 4).

DISCUSSION

This satisfaction study has a number of limitations. It was carried out during the use of the new model when preference for the status quo could have caused a bias against the old model. The small number of participants in both the patient and physician surveys limits the study's power. Though the survey's data collection was carried out by nonphysicians, it was clear that the Marathon Family Practice was the instigator of the study and this may have skewed results, particularly among patients, as there is known reluctance to criticize caregivers.[14] Similarly for patients, the halo effect (a powerful positive outcome influencing retrospective perceptions) of having delivered a baby could have affected this retrospective study. Finally, given that the physicians surveyed had created the model, a sense of ownership may have influenced their responses.

The 100% level of patient satisfaction achieved by this new model of obstetric care is comparable to observed satisfaction rates of 75% to 100%[10,11,15] from obstetric literature. Though our study did not evaluate the patient satisfaction with the old model of care, we take assurance that though the new model may differ in patient satisfaction it is nonetheless very well received and has levels of satisfaction similar to other obstetrics paradigms.

Consistent with the high satisfaction rate is the large number of respondents (97%) having had their expectations met or surpassed during their obstetric care in Marathon. It has been previously established that patients' satisfaction is influenced by their expectations of the medical care received.[16]

The provider arm of the study found the new system well accepted by most of the doctors. The new model was achieving its goal of creating an improved quality of life for the obstetrics providers by limiting the on-call duties and increasing their predictability. Its structure maintained a continuity of care important to both the provider and patient experience. The physicians perceived the patients as being satisfied with the system and this view was validated by the results of the patient survey.

The new model is not without its challenges. Clearly, it concentrates the stressors of doing deliv-

eries over a focused period. Depending on the number of deliveries per month, either too high, or too low, this system could become untenable. Presently, the small numbers of deliveries that occur per year in Marathon help make this system viable. As well, the number of physicians involved in obstetrics in our community contributes to the model's success. With many less, or more, physicians the frequency of a physician's on-call duties in a month could be correspondingly too much, or too little. Given that this new model's success is dependent on both the number of deliveries and number of providers, it is likely best transferable to situations with similar-sized patient populations and physician groups. Adoption of such a model ultimately depends on the value system of the physicians involved, as the benefits of collaboration in this new approach may not outweigh the benefits they perceive in their present approach to obstetric care.

With consumers and providers satisfied, the ultimate test of the model will be its ability to maintain a sufficient number of providers over time to keep the obstetrics program functioning and healthy.

CONCLUSION

The new model devised and implemented by the physicians of the Marathon Family Practice meets patients' expectations and provides a good degree of patient satisfaction with their obstetric care. This new paradigm of obstetric care provides practitioners with an increased quality of life through more predictable work. They are more satisfied with it compared with the previously employed model. This is a novel, viable model for the provision of obstetric care in the appropriate setting.

Competing interests: None declared.

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REFERENCES

1. Ruderman J, Carroll JC, Reid AJ, et al. Are physicians changing the way they practise obstetrics? *CMAJ* 1993;148:409-15.
2. Klein M, Reynolds JL, Boucher F, et al. Obstetrical practice and training in Canadian family medicine: conserving an endangered species. *Can Fam Physician* 1984;30:2093-9.
3. Hutten-Czapski P. Decline of obstetrical services in northern Ontario. *Can J Rural Med* 1999;4:72-6.
4. Reid AJ, Carroll JC. Choosing to practice obstetrics. What factors influence family practice residents? *Can Fam Physician* 1991;37:1859-67.
5. Reynolds JL. Doing obstetrics and staying alive. *Can Fam Physician* 1993;39:1947-53.
6. Buckle D. Obstetrical practice after a family medicine residency. *Can Fam Physician* 1994;40:261-8.
7. Madden ML, Moore RW. Barriers to provision of obstetric services by family physicians in Louisiana. *J La State Med Soc* 2001;153:127-33.
8. Rourke JTB. Trends in small hospital obstetrical services in Ontario. *Can Fam Physician* 1998;44:2117-24.
9. Nesbitt TS, Connell FA, Hart LG, et al. Access to obstetric care in rural areas: effect on birth outcomes. *Am J Public Health* 1990;80:814-8.
10. Osmun WE, Poenn D, Buie M. Dilemma of rural obstetrics: one community's solution. *Can Fam Physician* 1997;43:1115-9.
11. Stretch NC. Community obstetrics: a new look at group obstetrical care in rural communities. *Can J Rural Med* 2002;7:183-90.
12. Klein M. The effectiveness of family practice maternity care. *Prim Care* 1993;20:523-36.
13. Omar MA, Schiffman RF, Bingham CR. Development and testing of a patient expectations and satisfaction with prenatal care instrument. Research in nursing practice shared-call group. *Res Nurs Health* 2001;24:218-29.
14. Murray I, Wilcock A, Kobayashi L. Obstetrical patient satisfaction. *J Health Care Mark* 1996;16:54-7.
15. Shapiro JL. Satisfaction with obstetrical care. A patient survey in a family practice shared-call group. *Can Fam Physician* 1999;45:651-7.
16. Fox JG, Storms DM. A different approach to socio-demographic predictors of satisfaction with health care. *Soc Sci Med* 1981;15:557-64.