ABSTRACT

Objectives: To describe: 1) the education of pregnant women by health care professionals about the prevention of preterm birth; and 2) professionals' views about future initiatives.

Background: A population survey of health professionals was conducted in Eastern Ontario. The response rate was 73% (608/835).

Results: Education materials for women receiving prenatal care about the prevention of preterm birth were available from 10% (12/115) of family physicians, 40% (23/58) of obstetricians, 19% (57/306) of labour room nurses and 76% (94/124) of the prenatal teachers. Only one third of physicians routinely discussed the signs and symptoms of preterm labour prior to 20 weeks. Practitioners' future priorities were smoking cessation programs for pregnant women and increased attendance at early prenatal classes.

Conclusions: Most women are not being educated by anyone in the health care team about the prevention of preterm birth. There is a need for multidisciplinary guidelines about the timing and type of information for women about risk reduction and the early identification and treatment of preterm labour.

ABRÉGÉ

Objectifs : Décrire : 1) l'éducation des femmes enceintes par des professionnels de la santé sur les moyens de prévenir les naissances avant terme; et 2) les points de vue des professionnels concernant les initiatives futures.

Antécédents : On a sondé les professionnels de la santé dans l'est de l'Ontario. Le taux de réponse a été de 73 % (608/835).

Résultats : Dix pour cent (12/115) des médecins de famille, 40 % (23/58) des obstétriciens, 19 % (57/306) des infirmières des salles d'accouchement et 76 % (94/124) des éducateurs en soins prénatals disposaient de ressources éducatives sur la prévention des naissances avant terme à l'intention des femmes recevant des soins prénatals. Seulement un tiers des médecins expliquent systématiquement avant la vingtième semaine de grossesse ce que sont les signes et les symptômes d'un accouchement prématuré. À l'avenir, les priorités des praticiens seront les programmes de cessation du tabagisme pour les femmes enceintes et un renforcement de leur présence aux premiers cours prénatals.

Conclusions : Personne dans l'équipe de soins de santé ne sensibilise la plupart des femmes à la prévention des naissances avant terme. Il importe de se doter de lignes directrices multidisciplinaires pour savoir quand et quoi dire aux femmes au sujet de la réduction du risque, ainsi que pour permettre l'identification précoce et le traitement des accouchements avant terme.

Education of Women About the Prevention of Preterm Birth

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Low birthweight (<2500 grams) is one of the most important perinatal problems accounting for 75% of perinatal morbidity and mortality not due to congenital anomalies.¹⁻³ Low birthweight infants have increased risks of neurologic, metabolic, and respiratory problems and the social and economic costs to the family, community and health care system are considerable. Lifetime costs for surviving Canadian low birthweight infants have been estimated at \$600,000.⁴ The incidence of low birthweight is 5.7% and in 1993 there were 22,311 low birthweight infants born in Canada.⁵ Lower incidence rates (3-5%) have been reported in Norway, Finland, Sweden, France and Switzerland, suggesting that it may be possible to decrease the rate of low birthweight in Canada with appropriate programs.³ In developed countries such as Canada, most low birthweight (60-70%) is due to prematurity whereas in developing countries it is due to the birth of small-for-gestational-age infants.⁶

Three potential approaches to the prevention of preterm birth are: 1) primary prevention through risk reduction (smoking and stress reduction⁷); 2) secondary prevention through the early detection and appropriate treatment of preterm labour;⁸ and 3) tertiary prevention through (a) the

use of antenatal steroids to reduce mortality, intraventricular haemorrhage and respiratory distress syndrome^{9,10} and (b) the birth of a baby in a tertiary care centre equipped to deal effectively with neonatal complications.¹¹

Traditionally, practitioners have concentrated prevention efforts on women considered to be at highest risk for preterm birth. Scoring systems have been used to identify "high-risk" women and these women are provided with more intensive prenatal care. This approach has had little impact on reducing population rates of prematurity. Risk-scoring systems have low sensitivity (<50%) and positive predictive values (17-34%).¹² Thus, many women who will have a preterm birth do not receive any health care interventions, and many resources are used for women who will not have a preterm birth.

A community-wide or total population approach may have more potential to reduce the preterm birth rate than the high-risk approach.^{4,13-15} Within a population or community-wide approach, health care practitioners have a critical role in educating pregnant women about risk factor reduction and the importance of early identification and treatment of preterm labour.

There is a lack of Canadian studies on what education health care providers do provide to women, yet this information is critical for the planning of effective intervention programs. Therefore, a survey of all health professionals providing prenatal care in our region was undertaken with the following objectives: 1) to describe practices related to the education of pregnant women for the prevention of preterm birth; and 2) to describe practitioners' priorities for future initiatives.

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METHODS

A population survey of health care professionals in Eastern Ontario was conducted. Family physicians, labour room nurses, midwives, obstetricians and prenatal class teachers in public health departments were included. Eastern Ontario is a large geographic region with an annual birth rate of over 19,000.¹⁶ All health care institutions (hospitals/public health units) in the region were invited to participate in the study. Ninety-six percent of the institutions (27/28) agreed to participate in the survey, including 21/22 hospitals and 6/6 public health units, and supplied a list of all professionals providing prenatal/obstetric care. The survey was administered using Dillman's "Total Design Method".¹⁷ Questionnaires were mailed to physicians' offices and to nurses' homes or workplaces. Reminder postcards were mailed after one week and an additional questionnaire was mailed after one month.

Questionnaires with common as well as discipline-specific items were developed, based on a review of the literature and the content analysis of focus group sessions. Focus groups included women who had delivered a low birthweight infant as well as groups of health care providers. Questionnaire items included: identification and treatment of modifiable risk factors; the availability and use of client education material; and attitudes about future initiatives for the prevention of preterm birth.

Content validity of the questionnaire was assessed by experienced clinicians, educators and administrators. Five women with low birthweight infants reviewed the items for relevance. Test-retest reliability of the questionnaires was evaluated in a pilot study with 30 practitioners. Two items which did not achieve 90% agreement over time required minor revision.

RESULTS

There were 869 questionnaires mailed to potential respondents in 1992. Questionnaires of 30 respondents (3%; 30/869) were returned because the professional had retired, was on leave or was not working at that time. The overall response

	Professional Group			
	Family Physician N = 115 n (%)	Obstetrician N = 59 n (%)	Labour/ Delivery Nurse N = 309 n (%)	Prenatal Teacher N = 125 n (%)
Sex				
Male	74 (65)	47 (80)		
Female	40 (35)	12 (20)	307(100)	125(100)
Year completed basic program				
1-5 yrs	9 (8)	1 (2)	30 (10)	18 (15)
6-10 yrs	34 (30)	11 (20)	39 (13)	25 (21)
11-15 yrs	34 (30)	10 (18)	40 (13)	22 (18)
> 15 yrs	36 (32)	34 (61)	190 (64)	55 (46)
Hospital				
Teaching	37 (33)	30 (51)	122 (40)	
Non-Teaching	75 (67)	29 (49)	181 (60)	
Deliveries performed at hospital				
< 500	40 (37)	4 (7)	97 (32)	
501-1000	20 (18)	9 (15)	67 (22)	
1001-3000	35 (32)	30 (51)	96 (32)	
>3000	14 (13)	16 (27)	44 (14)	
How frequent contact with high risk women				
Almost never	37 (33)		52 (17)	56 (45)
Monthly	52 (47)	10 (18)	100 (33)	45 (36)
Weekly	18 (16)	29 (52)	100 (33)	20 (16)
Daily	4 (4)	17 (30)	51 (17)	3 (2)
Percentage of patients with preterm labour				
0%	21 (19)		5 (2)	
1-5%	67 (61)	20 (38)	104 (38)	
> 5%	21 (19)	33 (62)	168 (61)	
Totals may vary due to missing data on individual items				

	Professional Group			
	Family Physician N = 115 n (%)	Obstetrician N = 59 n (%)	Labour/ Delivery Nurse N = 309 n (%)	Prenatal Teacher N = 125 n (%)
Education material: preterm Labour prevention	12 (10)	23 (40)	57 (19)	94 (76)
Discuss signs and symptoms				
All	50 (45)	28 (50)	122 (41)	114 (93)
High risk	42 (38)	28 (50)	118 (40)	
Not usually done	18 (16)		57 (19)	9 (7)
First discuss signs and symptoms				
Prior to 20 wks	33 (35)	19 (33)		
20+ wks	61 (65)	38 (67)		
Totals may vary due to missing data on individual items				

rate was 73% (612/839): 84% from prenatal teachers (125/149), 75% from labour and delivery nurses (309/410), 63% (174/276) from physicians, and 100% (4/4) from midwives. Due to the very small number of midwives in Eastern Ontario, their data were excluded from the analyses. Overall, there was a low percent-

age of missing data (<5%) on individual questionnaire items.

The demographic characteristics of the sample reflected a wide cross-section of health professionals (Table I). The majority of obstetricians (61%, 34/56) and labour room nurses (64%, 190/299) had been practising for more than 15 years.

TABLE III
Practitioners' Agreement with Future Initiatives to Prevent Preterm Birth

	Professional Group									
	Family Physician N = 115		Obstetrician N = 59		Labour/ Delivery Nurse N = 309		Prenatal Teacher N = 125		Total N = 608	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Smoking cessation programs	100	(91)	50	(88)	277	(90)	100	(81)	527	(88)
Increased attendance at early prenatal classes	82	(75)	44	(77)	268	(88)	113	(91)	507	(85)
Substance abuse treatment programs	93	(85)	51	(89)	258	(85)	95	(78)	497	(84)
Increased awareness of community resources	68	(62)	38	(68)	252	(83)	111	(91)	469	(79)
Increased community awareness of risks	52	(48)	44	(77)	252	(83)	117	(94)	465	(78)
24-hour telephone hotline	37	(34)	32	(58)	205	(68)	81	(66)	355	(60)
Financial compensation for counselling	75	(70)	35	(63)	160	(54)	58	(50)	328	(57)
Non-professional/peer support	56	(51)	26	(46)	164	(54)	64	(52)	310	(52)
Preconception visit	49	(45)	25	(45)	144	(47)	74	(61)	292	(49)
Increase frequency of antenatal visits	25	(23)	18	(32)	169	(55)	61	(50)	273	(46)
Totals may vary due to missing data on individual items										

The majority of family physicians (67%, 75/112) and labour room nurses (60%, 181/303) were working in non-teaching hospitals.

Client education materials about the prevention of preterm labour were available among 10% (12/115) of family physicians, 40% (23/58) of obstetricians, and 19% (57/306) of labour and delivery nurses (Table II). A higher proportion of prenatal teachers (76%, 94/124) had client education materials about the prevention of preterm birth.

Physicians were asked to describe difficulties associated with risk factor reduction. Comments on the questionnaire indicated caregivers' frustration with counselling about smoking cessation in particular: "I almost always fail in reducing smoking"; "tough"; "women are aware not to smoke"; "compliance is the problem"; "I never get anyone to stop smoking"; "Hopeless-but will keep trying".

Prenatal teachers (n=125) were asked to report the total amount of class time spent on lifestyle factors. The median number of minutes reported was 45 minutes on nutrition; 40 minutes on physical exercise; 30 minutes on stress reduction; 15 minutes on smoking cessation; 15 minutes on substance abuse; 10 minutes on strenuous work/home activity; and 0 minutes on physical abuse.

The majority of prenatal teachers (69%) reported that they thought their clients were apprehensive about preterm birth, and 41% of the teachers thought that their clients were not interested in this topic. Half of the 125 prenatal teachers believed there should be more emphasis on the prevention of preterm birth in prenatal classes.

About half of family physicians (45%, 50/110) and obstetricians (50%, 28/56) reported discussing the signs and symptoms of preterm labour with all prenatal clients, whereas 93% (114/123) of prenatal teachers reported doing so (Table II). One third of family physicians (35%, 33/94) and obstetricians (33%, 19/57) first discussed the signs and symptoms of preterm labour before 20 weeks.

Across all groups of practitioners, the highest level of support for future initiatives for the prevention of preterm birth was for smoking cessation programs for pregnant women (Table III). Increased attendance at early prenatal classes which focus on a healthy lifestyle during pregnancy was also highly rated by all practitioner groups.

DISCUSSION

Physicians expressed frustration in the area of counselling patients about smoking cessation, and all practitioner groups rec-

ommended that smoking cessation programs for pregnant women should be a priority. The College of Family Physicians of Canada (1995) have prepared a guide for health professionals which includes information about the context of smoking during pregnancy, adult education, case studies, charting forms and patient handouts.¹⁸ In a randomized trial of a pregnancy smoking cessation program administered by a public health nurse at the first prenatal visit, 90% of the women participated in the study with significant decreases in smoking rates found in the intervention group.¹⁹ Most of the women (67%) were interested in learning about strategies that had helped other pregnant women stop smoking. Therefore, future approaches to the prevention of preterm birth should include information for professionals about counselling for smoking cessation as well as opportunities to address the difficulties and frustrations encountered by practitioners.

Increased attendance at early prenatal classes where a healthy lifestyle is discussed was also highly rated by the majority of all practitioners as a future initiative to prevent preterm birth. In a previous survey of 437 women in the same region, only 23% of women had attended early prenatal classes, yet an additional 39% of women said that they would have been interested if they had known about the classes.²⁰

Women who had been advised by their physician to attend early classes were more likely to do so than women who had not received the advice.²⁰ Therefore, physicians need to inform women about the availability of early prenatal classes.

The two most effective strategies to prevent preterm morbidity and mortality are the use of antenatal corticosteroids to promote fetal pulmonary maturity, and ensuring the baby is born at a hospital with a newborn intensive care unit.¹¹ These strategies are dependent on the early detection of preterm labour both to give time for the woman to be transferred to another hospital if necessary, and to allow the two doses of steroids to be given 24 hours apart. If the woman presents early enough and there are no contraindications, then she can be given tocolytic agents. Administration of tocolytic agents reduces the likelihood of delivering within 24-48 hours of starting treatment, thereby allowing time for treatment of medical problems and administration of steroids.⁸ In the Canadian preterm labour trial (1992), only 35% of women completed the optimum corticosteroid treatment.²¹

One potentially inexpensive way to increase the percentage of women who present to the hospital in early preterm labour is to educate all pregnant women about the early signs and symptoms of preterm labour. According to this survey, there is a need to improve the education of pregnant women about the signs and symptoms of preterm labour since just one third of family physicians and obstetricians reported that they first discussed the signs and symptoms of preterm labour before 20 weeks gestation. Only half of the physicians discussed the signs and symptoms with all pregnant women at some point in the pregnancy. Although most prenatal teachers reported that they discussed the signs and symptoms of preterm labour with their clients, most women do not attend early prenatal classes.

Studies from the pregnant woman's perspective also support the need for additional education about preterm labour.^{14,22,23} In a survey of 465 Quebec women receiving prenatal care, one third of the women did not recognize the signs and symptoms of premature rupture of the membranes and of premature labour.¹⁴

The concern expressed by prenatal class teachers about the apprehension of women about preterm birth and the perceived lack of interest by pregnant women needs to be addressed. A series of focus groups subsequently conducted by the researchers with women who had had a preterm or term birth explored these concerns further. The women with a preterm birth expressed very strong feelings that they wished they had known more about the risk factors for preterm birth and the early signs and symptoms of preterm labour. All the women suggested that educational materials need to present the information clearly and put it in perspective so that women learn what they need to know without being unduly frightened.

CONCLUSION

In summary, based on the results of this survey, the following strategies are recommended to improve the education of women about preterm birth prevention: 1) consistent education for all pregnant women by all health care providers about the early signs and symptoms of preterm labour and the reasons why this is necessary; 2) use of educational materials for women which present information clearly and not in an alarming manner; 3) information for professionals about useful lifestyle counselling for risk reduction as well as opportunities to address the difficulties and frustrations encountered in practice; 4) information for women from physicians about the availability of quality early prenatal classes; and 5) multidisciplinary guidelines about the timing and type of information for women about risk reduction and the early identification and treatment of preterm labour.

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