

How Do Physicians and Midwives Manage the Third Stage of Labor?

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ABSTRACT: **Background:** Current practice guidelines recommend active management of the third stage of labor. We compared practices of three maternity care provider disciplines in management of third-stage labor and the justifications for their approach. **Methods:** This study is a cross-sectional survey of maternity practitioners in usual practice settings in British Columbia. All 199 obstetricians, all 82 midwives, and a random sample of family physicians practicing intrapartum maternity care (one-third, or 346) were surveyed. The three main outcome measures by discipline were the method preferred in managing third-stage labor; the reasons given for the chosen method, and views on the appropriateness of the current third-stage labor guideline. **Results:** The overall response rate was 57.8 percent. Response rates indicating that the participants were “aware of guideline” were the following: obstetricians, 85.3 percent; family physicians, 53.7 percent; and midwives, 97.8 percent. Response rates indicating that the participants “agreed with guideline” were the following: obstetricians, 95.2 percent; family physicians, 97.6 percent; and midwives, 51.2 percent. Response rates indicating that “oxytocin should be given with anterior shoulder” were the following: obstetricians, 71.1 percent; family physicians, 68.3 percent; and midwives, 26.7 percent. Response rates indicating that “routine active management of third stage of labor should be the norm” were the following: obstetricians, 79.2 percent; family physicians, 60.2 percent; and midwives, 17 percent. All results were statistically significant ($p < 0.01$). **Conclusions:** A major difference was found between physicians and midwives in the management of third-stage labor. Physicians routinely implemented active management of the third stage of labor; midwives preferred expectant approaches, principally based on women’s preference. Provincial data did not show differences in postpartum hemorrhage or transfusion rates by practitioner type. (BIRTH 35:3 September 2008)

Key words: third stage of labor, active management, expectant management, clinical practice guidelines, external and internal validity, midwifery

The third stage of labor is defined as the period between delivery of the infant and delivery of the placenta. The major complication associated with this stage is postpartum hemorrhage, defined as vaginal

bleeding of more than 500 mL in the first 24 hours after delivery (1). The most common cause of immediate severe postpartum hemorrhage is uterine atony. Retained placenta, vaginal or cervical lacerations, and

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uterine rupture or inversion can also contribute to the complication (1,2). Postpartum hemorrhage remains the most common cause of maternal mortality worldwide, accounting for one-fourth of the maternal deaths (3).

Management of the third stage of labor can directly influence important maternal outcomes, such as need for manual removal of the placenta and postpartum hemorrhage (1,2). Two approaches, *active* and *expectant*, have been proposed for the management of the third stage of labor. Active management involves administration of prophylactic oxytocin before delivery of the placenta, early cord clamping and cutting, and gentle cord traction with uterine countertraction when the uterus is well contracted (Brandt-Andrews maneuver) (1,2,4–11). Expectant management involves waiting for signs of placental separation and allowing the placenta to deliver spontaneously or aided by gravity or nipple stimulation (4).

Several large randomized controlled trials (5,6,9–11) and key reviews (7,8) have addressed the question of whether expectant or active management is preferable. These five trials, which have been the subject of a meta-analysis in the Cochrane Library (1), are commonly named according to their geographic sites, namely, Abu Dhabi (5), Brighton (10), Bristol (6), Dublin (11), and Hinchingbrooke (9). These trials have consistently shown that active management leads to several benefits compared with expectant management, with an approximately 60 percent reduction in the occurrence of postpartum hemorrhage and severe postpartum hemorrhage, reduction in anemia, and reduction in the need for blood transfusion; the need for therapeutic uterotonic agents was also reduced by 80 percent. The results indicate that for every 12 women receiving active management rather than expectant management, one postpartum hemorrhage would be prevented; for every 67 women so managed, one blood transfusion would be avoided (1).

The International Confederation of Midwives and the International Federation of Gynecology and Obstetrics have developed and released an International Joint Policy Statement on management of the third stage of labor to prevent postpartum hemorrhage (12). It has been reviewed and endorsed by the Society of Obstetricians and Gynecologists of Canada as a clinical practice guideline. The key recommendation was that active management of the third stage of labor should be offered to all women since it reduces the incidence of postpartum hemorrhage due to uterine atony. Despite evidence that active management of the third stage of labor reduces the incidence of postpartum hemorrhage, expectant management is still widely practiced (13,14). Factors accounting for this dissonance with the guideline include the desire for a more natural childbirth

experience, the philosophy or belief that active management is unnecessary in low-risk women, and the desire to avoid the adverse effects associated with conventional uterotonic agents (15).

An observational cross-sectional survey (13) on the use of the active management of the third stage of labor in 15 university-based obstetric centers in 10 developing and developed countries found significant intracountry and intercountry variation in the practice of active management of third stage of labor (overall, 111 of 452 deliveries were managed with the use of active management). In addition, studies from Europe confirmed a similar variation in approach (14). These studies confirmed the existence of a large gap between knowledge and practice, but they did not analyze the data based on different practitioner group membership. However, studies in British Columbia have demonstrated that midwife postpartum hemorrhage rates at home birth or hospital did not differ from matched physician practice (16,17).

Despite the recommendation by the Society of Obstetricians and Gynecologists of Canada (modified since our study) advising active management, and although we expected some lack of synchrony between recommendation and practice, we hypothesized that different levels of lack of synchrony would be found in British Columbia among different health care practitioners. To our knowledge, in Canada, no study has been previously published comparing different maternity care practitioners to determine their third-stage labor practice patterns. A study in the Netherlands showed a significant difference between obstetricians and midwives in their use of routine prophylactic oxytocin in managing the third stage of labor (55% vs 10%, respectively) (18).

Whereas the randomized controlled trial is the “gold standard” for the production of evidence-based guidelines, a discussion on the application of the results of trials to normative practice continues. The current Cochrane Review (1) suggests in one place that the active approach to third-stage labor ought to apply to home birth or birth center births in industrialized countries, whereas in another place, the review expresses less certainty. The issue is further confused by the use of a combination of oxytocin and ergometrine in some trials, rather than pure oxytocin as the agent employed. In North America, oxytocin is the agent used. It is reasonable to explore the question of internal versus external validity or the applicability of even well-conducted trials to the often “messy” or just different conditions of practice. The current study contributes to this discussion.

The objective of our study was to survey family physicians practicing intrapartum maternity care and

all obstetricians and midwives in British Columbia with respect to their third-stage labor management strategy. Our specific objectives were threefold: 1) to learn about their practice patterns in the management of third stage of labor after spontaneous vaginal deliveries, 2) to identify factors that may influence their management choice, and 3) to understand the reasons for not following active management of third stage of labor.

Methods

Study Sample

A list of obstetricians in British Columbia was obtained from the British Columbia College of Physicians and Surgeons, and a list of midwives in British Columbia from the College of Midwives of British Columbia was also obtained. Potential family physicians were randomly sampled (1 in every 3) from a list of family physicians billing the Medical Service Plan of British Columbia for at least one delivery during the study period. Obstetricians and family physicians not practicing intrapartum care were excluded. The study was conducted between January 1 and May 30, 2005. This strategy resulted in a postal survey directed to 627 potential study participants: one-third (346) of the family physicians practicing intrapartum maternity care, who were randomly sampled; all 199 obstetricians practicing intrapartum care; and all 82 midwives in British Columbia.

Data Collection Tool and Procedure

A questionnaire was designed and pretested for comprehension and validity on 10 practitioners in each of the three study groups. Part A consisted of demographic data (age, sex, medical specialty, years practicing as a maternity care practitioner, where trained, maternity care practitioner practice type, location of practice, number of births attended annually), and Part B consisted of questions about the management of third stage of labor, including time to perform cord clamping and cutting; routine use of prophylactic uterotonic agents to prevent postpartum hemorrhage; usual prophylactic drug of choice; usual route of the drug given in the absence of emergency; usual preventative dose of oxytocin; intravenous setup for women with history of postpartum hemorrhage; time to administer oxytocin; approach in delivering the placenta; other methods to facilitate delivery of the placenta; routine uterine massage after delivery of the placenta; routine examination of the placenta, its membranes, and the umbilical cord after delivery; routine

manual exploration of the uterus after expulsion of the placenta; newborn management during third stage of labor; beliefs and opinions about third-stage labor management; and views about the Society of Obstetricians and Gynecologists of Canada guideline.

Questions were multiple-choice type, with space provided for comments and for respondents to indicate their reasons for employing their preferred third-stage labor strategy. Questionnaires were mailed to participants and followed by only one repeat mailing since we deemed the adjusted response rate adequate.

Data Analysis

Statistical analysis was performed using SPSS software (19). Responses of family physicians, obstetricians, and midwives were compared. Bivariate analysis was conducted using chi-square statistics for categorical variables. Results were considered significant at $p < 0.01$.

The study was reviewed and approved by the Behavioral Research Ethics Board of the University of British Columbia.

Results

The unadjusted response rate was 45.8 percent. However, in 2005, during this study period, approximately 100 family physicians and 30 obstetricians stopped providing labor and delivery care. This physician departure from intrapartum practice reduced the actual sample size to 497 from the size initially planned (627). Taking into consideration the loss of 130 physicians who stopped providing intrapartum maternity care during the study period, the adjusted overall response rate was 57.8 percent (287 of 497). The adjusted response rates by practitioner category were the following: 77 obstetricians (45.6%), 163 family physicians (66.2%), and 47 midwives (57.3%).

Demographic and practice characteristics of respondents revealed the expected distributions (data not shown). Compared with other practitioners, obstetricians were older, more often male in solo or hospital-based practice in large cities, and 87 percent attended more than 50 births per year. Family physicians and midwives more often practiced in rural and small towns. Forty percent of obstetricians, 39 percent of family physicians, and 47 percent of midwives reported practicing for more than 20 years, whereas 29, 22, and 28 percent of each group, respectively, reported being in practice for less than 10 years.

When respondents were asked to select from a list of third-stage labor management strategies they

Table 1. Third-Stage Labor Management Approaches by Practitioner Group

Panel A					
<i>Variables</i>	<i>Obstetricians/ Gynecologists No. (%)</i>	<i>Family Physicians No. (%)</i>	<i>Midwives No. (%)</i>	<i>p</i>	
Usual time for performing cord clamping/cutting				< 0.001	
Early	60 (77.9)	114 (69.9)	1 (2.2)		
Late	1 (1.3)	6 (3.7)	28 (60.9)		
Variable	16 (20.8)	41 (25.2)	16 (34.8)		
Others	0 (0.0)	2 (1.2)	1 (2.2)		
Total	77 (100.0)	163 (100.0)	46 (100.0)		
Routine use of prophylactic uterotonic agents				< 0.001	
Yes	75 (98.7)	152 (93.3)	16 (35.6)		
No	1 (1.3)	11 (6.7)	29 (64.4)		
Total	76 (100.0)	163 (100.0)	45 (100.0)		
Usual 3rd-stage prophylactic drug of choice				0.324	
Oxytocin	73 (94.8)	158 (96.9)	43 (93.5)		
Ergometrine	0 (0.0)	2 (1.2)	0 (0.0)		
Syntometrine	0 (0.0)	1 (0.6)	1 (2.2)		
Combination	4 (5.2)	2 (1.2)	2 (4.3)		
Total	77 (100.0)	163 (100.0)	46 (100.0)		
Use of prophylactic intravenous setup in a woman with a history of postpartum hemorrhage				< 0.001	
Yes	75 (97.4)	152 (93.3)	21 (50.0)		
No	2 (2.6)	11 (6.7)	21 (50.0)		
Total	77 (100.0)	163 (100.0)	42 (100.0)		
Timing of administration of usual dose of oxytocin				< 0.001	
At delivery of anterior shoulder (1)	54 (71.1)	110 (68.3)	12 (26.7)		
Immediately after delivery of infant (2)	13 (17.1)	23 (14.3)	16 (35.6)		
After delivery of placenta	5 (6.6)	17 (10.6)	0 (0.0)		
At the first sign of excessive blood loss	0 (0.0)	1 (0.6)	12 (26.7)		
Other	1 (1.3)	3 (1.9)	0 (0.0)		
1 or 2 (above)	2 (2.6)	6 (3.7)	0 (0.0)		
Other combinations	1 (1.3)	1 (0.6)	5 (11.1)		
Total	76 (100.0)	161 (100.0)	45 (100.0)		
Panel B					
<i>Variables</i>	<i>Obstetricians/ Gynecologists No. (%)</i>	<i>Family Physicians No. (%)</i>	<i>Midwives No. (%)</i>	<i>Total No. (%)</i>	<i>p</i>
I routinely perform uterine massage after delivery of the placenta					0.571
Yes	50 (64.9)	96 (58.9)	30 (65.2)	176 (61.5)	
No	27 (35.1)	67 (41.1)	16 (34.8)	110 (38.5)	
Total	77 (100.0)	163 (100.0)	46 (100.0)	286 (100.0)	
I routinely examine the placenta, its membranes, and the umbilical cord after delivery for completion					0.275
Yes	75 (97.4)	162 (99.4)	47 (100.0)	284 (99.0)	
No	2 (2.6)	1 (0.6)	0 (0.0)	3 (1.0)	
Total	77 (100.0)	163 (100.0)	47 (100.0)	287 (100.0)	
I routinely manually explore the uterus after expulsion of the placenta					0.365
Yes	1 (1.3)	5 (3.1)	0 (0.0)	6 (2.1)	
No	76 (98.7)	157 (96.9)	47 (100.0)	280 (97.9)	
Total	77 (100.0)	162 (100.0)	47 (100.0)	286 (100.0)	

employed most often, the selections varied by practitioner (Table 1, panel A). Compared with obstetricians and family physicians, midwives were less likely to perform early cord clamping and cutting

($p < 0.001$), less likely to use prophylactic oxytocin routinely for third-stage labor management ($p < 0.001$), less likely to set up an intravenous line or insert a saline lock during labor in a woman with a history of

postpartum hemorrhage ($p < 0.001$), and less likely to administer oxytocin at delivery of the anterior shoulder ($p < 0.001$).

Sixty-four percent of obstetricians, 58.9 percent of family physicians, and 65.2 percent of midwives (Table 1, panel B) would routinely perform uterine massage after delivery of the placenta ($p = 0.571$), whereas almost all obstetricians, family physicians, and midwives would routinely examine the placenta, its membranes, and the umbilical cord after delivery ($p = 0.275$). Only a few obstetricians and family physicians would routinely manually explore the uterus after expulsion of the placenta, and no midwife would routinely manually explore the uterus ($p = 0.365$).

Attitudes about third-stage labor management by practitioner group are shown in Table 2. Most obstetricians (77.3%), family physicians (60.3%), and midwives (80.8%) agreed or strongly agreed that active management of the third-stage labor (administration of prophylactic oxytocin before delivery of the placenta, early cord clamping and cutting, controlled cord traction on the umbilical cord, and uterine massage) was supported by research and evidence-based guidelines. However, when asked if they agreed that active management of third stage of labor should be routine in low-risk women, 82.5 percent of obstetricians, 60.7 percent of family physicians, and only 17.4 percent of midwives agreed or strongly agreed ($p <$

Table 2. Attitudes about Third-Stage Labor Management by Practitioner Group

Variables	Obstetricians/ Gynecologists No. (%)	Family Physicians No. (%)	Midwives No. (%)	Total No. (%)	p
Newborn suckling on a breast plays an important role in preventing postpartum hemorrhage					0.001
Strongly disagree	5 (6.5)	2 (1.2)	0 (0.0)	7 (2.4)	
Disagree	8 (10.4)	3 (1.8)	4 (8.5)	15 (5.2)	
Neutral	30 (39.0)	74 (45.4)	11 (23.4)	115 (40.1)	
Agree	32 (41.6)	73 (44.8)	26 (55.3)	131 (45.6)	
Strongly agree	2 (2.6)	11 (6.7)	6 (12.8)	19 (6.6)	
Total	77 (100.0)	163 (100.0)	47 (100.0)	287 (100.0)	
Active management of 3rd stage of labor is evidence based, effective care					0.001
Strongly disagree	1 (1.3)	2 (1.2)	1 (2.1)	4 (1.4)	
Disagree	5 (6.7)	12 (7.5)	2 (4.3)	19 (6.7)	
Neutral	11 (14.7)	50 (31.1)	6 (12.8)	67 (23.7)	
Agree	33 (44.0)	79 (49.1)	30 (63.8)	142 (50.2)	
Strongly agree	25 (33.3)	18 (11.2)	8 (17.0)	51 (18.0)	
Total	75 (100.0)	161 (100.0)	47 (100.0)	283 (100.0)	
Active management of 3rd stage of labor should be routine in low-risk women					< 0.001
Strongly disagree	1 (1.4)	3 (1.8)	3 (6.5)	7 (2.5)	
Disagree	7 (9.5)	21 (12.9)	23 (50.0)	51 (18.0)	
Neutral	5 (6.8)	40 (24.5)	12 (26.1)	57 (20.1)	
Agree	42 (56.8)	81 (49.7)	5 (10.9)	128 (45.2)	
Strongly agree	19 (25.7)	18 (11.0)	3 (6.5)	40 (14.1)	
Total	74 (100.0)	163 (100.0)	46 (100.0)	283 (100.0)	
Expectant management of 3rd stage of labor should be routine in low-risk women					< 0.001
Strongly disagree	10 (13.3)	7 (4.3)	1 (2.2)	18 (6.3)	
Disagree	36 (48.0)	63 (38.7)	13 (28.3)	112 (39.4)	
Neutral	23 (30.7)	60 (36.8)	14 (30.4)	97 (34.2)	
Agree	5 (6.7)	32 (19.6)	13 (28.3)	50 (17.6)	
Strongly agree	1 (1.3)	1 (0.6)	5 (10.9)	7 (2.5)	
Total	75 (100.0)	163 (100.0)	46 (100.0)	284 (100.0)	
I believe that I can predict which women require active vs expectant management					0.047
Strongly disagree	15 (20.8)	32 (19.6)	8 (17.0)	55 (19.5)	
Disagree	43 (59.7)	93 (57.1)	19 (40.4)	155 (55.0)	
Neutral	7 (9.7)	27 (16.6)	9 (19.1)	43 (15.2)	
Agree	7 (9.7)	9 (5.5)	10 (21.3)	26 (9.2)	
Strongly agree	0 (0.0)	2 (1.2)	1 (2.1)	3 (1.1)	
Total	72 (100.0)	163 (100.0)	47 (100.0)	282 (100.0)	

0.001). On the other hand, 8.0 percent of obstetricians, 20.2 percent of family physicians, and 39.2 percent of midwives agreed or strongly agreed that expectant management of third stage of labor should be routine in low-risk women ($p < 0.001$).

When asked to select their approach in managing the placenta (Table 3), most midwives would wait for the signs of spontaneous separation of the placenta, compared with 56.6 percent of obstetricians and 64.4 percent of family physicians, and most midwives would choose the expectant approach compared with the other two groups. Just over one-half of the midwives would perform controlled cord traction with counter-pressure above the pubic bone on a well-contracted uterus (Brandt-Andrews maneuver), compared with more than three-fourths of the obstetricians and family physicians. With respect to facilitating delivery of the placenta, 43.4 percent of obstetricians, 21.3 percent of family physicians, and 4.3 percent of midwives *did not* employ any method. Compared with obstetricians and family physicians, midwives were much more likely to employ additional methods to facilitate delivery of the placenta, such as positioning the woman upright or squatting, complementary therapies including herbs, and nipple stimulation with baby to breast. During the third stage of labor, all midwives would deliver the newborn on to the maternal abdomen or chest, compared with just over one-half of obstetricians and

three-fourths of family physicians. The baby would be handed over to pediatricians (if present) by 61.0 percent of obstetricians, 23.5 percent of family physicians, and 2.1 percent of midwives.

The three most important reasons given for the practitioners practicing *active management* of third stage of labor are shown in Table 4. In order of importance, obstetricians chose professional training, evidence-based medicine or new clinical practice guideline, and own experiences; family physicians chose professional training, own experiences, and risk assessment; and midwives chose evidence-based medicine or new clinical practice guideline, women's preferences, and risk assessment.

The three most important reasons given for not practicing active management are also shown in Table 4. In order of importance, obstetricians selected own experiences, professional training, and risk assessment (same ranking); family physicians chose own experiences, professional training, and women's preferences; and midwives selected women's preferences, risk assessment, and own experiences.

The three practitioner groups varied in their opinion on the current Society of Obstetricians and Gynecologists of Canada guideline recommending active management of third stage of labor for all births (Table 5). Almost all midwives and 85.3 percent of obstetricians were familiar with the current guideline

Table 3. Approaches to Placenta and Newborn Delivery

Variables	Obstetricians/ Gynecologists No. (%)	Family Physicians No. (%)	Midwives No. (%)	Total Number
Approach in delivering the placenta				
Waiting for the signs of spontaneous separation	43 (56.6)	105 (64.4)	40 (85.1)	188
Expectant	16 (21.1)	43 (26.4)	31 (66.0)	90
Drainage	14 (18.4)	29 (17.8)	17 (36.2)	60
Controlled cord traction	60 (78.9)	129 (79.1)	25 (53.2)	214
Corkscrew pulling on the cord	2 (2.6)	0 (0.0)	3 (6.4)	5
Other	0 (0.0)	2 (1.2)	1 (2.1)	3
Total	76	163	47	286
Methods of facilitating delivery of the placenta				
None	33 (43.4)	34 (21.3)	2 (4.3)	69
Woman in upright position	4 (5.3)	20 (12.5)	38 (80.9)	62
Complementary therapies	1 (1.3)	2 (1.3)	14 (29.8)	17
Nipple stimulation	13 (17.1)	57 (35.6)	35 (74.5)	105
Mother actively pushing	29 (38.2)	99 (61.9)	33 (70.2)	161
Emptying the bladder	13 (17.1)	28 (17.5)	23 (48.9)	64
Other	5 (6.6)	6 (3.8)	5 (10.6)	16
Total	76	160	47	283
Management of the newborn during 3rd stage of labor				
Handing over to pediatrician/family physician/nurse	47 (61.0)	38 (23.5)	1 (2.1)	86
Delivering onto the mother's abdomen	43 (55.8)	120 (74.1)	47 (100.0)	210
Delivering onto the bed	2 (2.6)	43 (26.5)	1 (2.1)	46
Other	5 (6.5)	8 (4.9)	0 (0.0)	13
Total	77	162	47	286

compared with 53.7 percent of family physicians ($p < 0.001$). However, despite their familiarity with the guideline, only one-half of midwives agreed with the recommendations of this guideline compared with almost all obstetricians and family physicians who were familiar with the guideline ($p < 0.001$).

Written qualitative comments were provided by 7 (9%) obstetricians, 19 (12%) family physicians, and 37 (74%) midwives. The full text of all comments is provided in the supplementary section for these obstetricians, family physicians, and midwives. Most writ-

ten comments related to a defense of expectant management, reasons why respondents disagreed with the previous Society of Obstetricians and Gynecologists of Canada guideline, or reasons for not following the previous Society of Obstetricians and Gynecologists of Canada recommendations. Of midwives responding, woman's personal preference was the guiding principle. In addition, three midwives commented on the inappropriateness of early cord clamping as another reason why they rejected the *full* guideline for active management.

Table 4. Reasons for Practicing or not Practicing Active Management of Third Stage of Labor

Variables	Obstetricians/ Gynecologists No. (%)	Family Physicians No. (%)	Midwives No. (%)	Total Number
Reasons for practicing active management of 3rd stage of labor				
Own experience	45 (62.5)	115 (76.2)	12 (33.3)	172
Professional training	55 (76.4)	118 (78.1)	9 (25.0)	182
Risk assessment	23 (31.9)	54 (35.8)	17 (47.2)	94
Woman's preference	3 (4.2)	4 (2.6)	23 (63.9)	30
Evidence-based medicine	45 (62.5)	53 (35.1)	26 (72.2)	124
Colleague opinions	1 (1.4)	25 (16.6)	0 (0.0)	26
Staffing level/time	2 (2.8)	14 (9.3)	1 (2.8)	17
Reading the literature	27 (37.5)	19 (12.6)	7 (19.4)	53
Other	1 (1.4)	7 (4.6)	1 (2.8)	9
Total	72	151	36	259
Reasons for not practicing active management of 3rd stage of labor				
Own experience	7 (100.0)	20 (80.0)	3 (38.2)	40
Professional training	4 (57.1)	14 (56.0)	12 (35.3)	30
Risk assessment	4 (57.1)	9 (36.0)	20 (58.8)	33
Woman's preference	0 (0.0)	12 (48.0)	34 (100.0)	46
Evidence-based medicine	0 (0.0)	1 (4.0)	5 (14.7)	6
Colleague opinions	1 (14.3)	1 (4.0)	1 (2.9)	3
Staffing level/time	0 (0.0)	3 (12.0)	0 (0.0)	3
Reading the literature	1 (14.3)	0 (0.0)	2 (5.9)	3
Other	0 (0.0)	0 (0.0)	4 (11.8)	4
Total	7	25	34	66

Table 5. Maternity Care Practitioner's Views on the Current Guideline for Management of Third Stage of Labor

Variables	Obstetricians/ Gynecologists No. (%)	Family Physicians No. (%)	Midwives No. (%)	Total No. (%)	p
Familiarity with the current guideline					
Yes	64 (85.3)	87 (53.7)	45 (97.8)	196 (63.3)	< 0.001
No	11 (14.7)	75 (46.3)	1 (2.2)	87 (30.7)	
Total	75 (100.0)	162 (100.0)	46 (100.0)	283 (100.0)	
Agreement with the current guideline					
Yes	60 (95.2)	82 (97.6)	21 (51.2)	163 (86.7)	< 0.001
No	3 (4.8)	2 (2.4)	20 (48.8)	25 (13.3)	
Total	63 (100.0)	84 (100.0)	41 (100.0)	188 (100.0)	

Discussion

A recent study in British Columbia comparing family physicians', obstetricians', and midwives' attitudes and beliefs about central issues in childbirth reported fundamental differences in opinions and beliefs among the three groups, with midwives and obstetricians consistently demonstrating significantly different views on key issues in maternity care (20). Family physicians were more diverse in that attitudes and practices of some members were more like those of midwives and others more like obstetricians, depending on the issue. However, most family physicians held intermediate views compared with those of midwives and obstetricians, but views about third-stage labor management were not included in that study.

Our study suggests that midwives in British Columbia had a different approach to third-stage labor management than their physician colleagues and were much less likely to use routine active management of this stage. It is interesting to note that although midwives were more familiar than physicians with the Society of Obstetricians and Gynecologists of Canada guideline recommending active management of third-stage labor, most of them rejected it, believing that the guideline did not take into account women's preferences in the management of this phase of labor. The literature supports the view that from the newborn perspective, early cord clamping is incorrect practice and should not be part of active management (21). In fact, the use of oxytocin with the delivery of the anterior shoulder seems to be the only element of the three components of active management about which little controversy exists, and it is likely that the rejection of the full active management of third-stage labor approach is, for many midwives, based on the inclusion of early cord clamping as part of the package. In an editorial accompanying the Hinchingsbrooke randomized controlled trial, Keirse (22) made the point that it is not possible to know which element(s) of the "active" package is(are) the key to prevention of postpartum hemorrhage. He suggested that oxytocin alone may be the most important element in the package. We agree, and since so many midwives in British Columbia were concerned about the other two elements in the "package," it is likely that for some, their rejection of the active approach was based on these two components.

Although most study midwives reported a different type of practice than physicians, the important question is whether this practice difference results in more postpartum hemorrhage or transfusions when births occur under the responsibility of midwives at home or in hospital than when they are the responsibility of physicians in hospitals. A previous study of all home

births in British Columbia showed no difference in postpartum hemorrhage or transfusion when women were attended by midwives at home or hospital (the same midwives), compared with a matched cohort of physician-attended births (16,17). Midwifery in British Columbia has been regulated since 1998, and many of the expected problems, including justified concerns about postpartum hemorrhage, have been addressed and acted on by the British Columbia College of Midwives.

Study Limitations

As in other surveys of this type, it is not possible to know differences between respondents and nonrespondents. We only studied maternity care practitioners in British Columbia, and the extent to which our findings can be generalized to other settings is unknown, but they are likely to be similar for other autonomous Canadian midwives. The study relied on self-report of practice, attitudes, and behavior, without verification if maternity care practitioners actually practiced in the manner described in their responses. *It is especially important that our findings not be generalized to developing countries, where postpartum hemorrhage is a major cause of maternal death.*

How is it possible to explain the lack of increased postpartum hemorrhage in a group of midwives who continued to practice expectant management of the third-stage labor, despite evidence that active management is preferable? Midwives in British Columbia and the hospital-based midwives who had participated in the Bristol randomized controlled trial of active versus expectant management of the third stage of labor practice differently. In the Bristol (6) and other trials, as is usual in British Columbia physician practice, after the third stage is over, it is our understanding that the midwife usually leaves the delivery room to take up other duties. In British Columbia, 40 percent of the midwifery births are at home and 60 percent in hospital, but in either setting, midwives remain with their clients, sometimes for hours after the birth. Hence, in British Columbia, midwives practice differently from midwives in the five trials on which the third-stage labor guideline is based. We presume that midwives in British Columbia are able to detect and act on incipient postpartum hemorrhage, and they do employ elements of active management selectively as needed.

The trial conditions leading to the current third-stage labor guideline were based on high-volume hospital practices where attending midwives did not know their clients, whereas British Columbia midwifery practice is of low volume and is highly personal. Furthermore, although the Cochrane Pregnancy and Childbirth

Group Database (1) recommends active management, its authors did not evaluate home births or the British Columbia type of autonomous, personal, community-based midwifery in their review and meta-analysis. Hence, although the trial-based recommendations have *internal validity* for the conditions of the trials, they may not have *external validity* for British Columbia midwifery-type practice. In all Canadian provinces where midwifery is regulated, autonomous midwifery practice is similar to that in British Columbia. We hope that our study will add to the ongoing discussion on internal versus external validity of randomized controlled trials and their application to complex care systems.

Conclusions

In this British Columbia sample, we found a major reported difference between physicians and midwives in the management of third-stage labor. Following the established guideline, physicians routinely implemented active management of the third stage of labor. On the other hand, although midwives understood the guideline best, they nevertheless preferred expectant approaches, based on women's preference and also because of rejection of elements in the complete package, such as immediate cord clamping. Provincial data did not show differences in postpartum hemorrhage or transfusion rates by practitioner type. The trial conditions on which the third-stage labor guideline was based were sufficiently different from those in usual midwifery practice in British Columbia as to suggest a lack of external validity to British Columbia midwifery practice.

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Supplementary Material

The following supplementary material is available for this article:

The full text of all written qualitative comments.

This material is available as part of the online article from: <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1523-536X.2008.00243.x>

(This link will take you to the article abstract.)

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