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## *Provider Support of Spontaneous Pushing During the Second Stage of Labor*

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**Objective:** To describe the association between provider communication and actual maternal pushing behavior in second-stage labor and to test differences in length of second stage and total maternal pushing time by maternal pushing behavior.

**Design:** Descriptive.

**Setting:** Midwest hospital birth unit.

**Participants:** Twenty primigravidas who gave birth vaginally.

**Intervention:** Type of provider communication (supportive of spontaneous or directed pushing).

**Main Outcome Measure:** Maternal pushing behavior (spontaneous or directed) documented by videotape review.

**Results:** The percentage of provider communication supporting spontaneous pushing versus directed pushing and the percentage of actual spontaneous versus directed maternal pushing behavior were associated (Pearson  $r = .80$ ,  $p = .001$ , for spontaneous and  $r = .89$ ,  $p = .001$ , for directed). Neither duration of second stage ( $t = .06$ ,  $p = .95$ ) nor time spent pushing ( $t = .15$ ,  $p = .89$ ) differed by spontaneous versus directed pushing style.

**Conclusion:** The proportion of spontaneous pushing by the birthing woman was positively and significantly associated with the proportion of caregiver communication supporting and encouraging spontaneous pushing. Importantly, spontaneous pushing did not significantly lengthen the duration of second-stage labor or total time spent pushing. *JOGNN*, 34, 695-702; 2005. DOI: 10.1177/0884217505281904

**Keywords:** Communication—Labor coaching—Provider support—Pushing—Second-stage labor

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Information shared by care providers is a powerful source of support for women in labor (Gagnon & Waghorn, 1996). Communication about the progress of labor and infant well-being is valued highly by women; however, provider communication that is in conflict with a woman's bodily sensations generates a sense of discouragement and disempowerment (McKay & Smith, 1993). For example, provider instruction to push that is in concert with the electronic monitor evidence of the onset of a uterine contraction may be at odds with the woman's actual innate and felt urge to bear down. Concerns have been raised that when conflicting provider information and ritual coaching take precedence over the physiologic processes of birth, the woman is confused and less able to participate fully in birthing her baby (Bergstrom, Seidel, Skillman-Hull, & Roberts, 1997).

This article describes care provider communication with women in the second stage of labor. Our particular focus was whether the communication was supportive of spontaneous pushing (guided by the woman's internal bodily cues) or of directed pushing (guided by a routine set of external instructions from providers). We assessed the impact of caregiver communication about pushing during second stage on actual maternal pushing behavior and further investigated the effect of maternal pushing behavior on the length of the second stage of labor.

### **Review of Literature**

Nearly 20 years ago, Mahan and McKay (1984) urged caregivers to allow birthing women to regulate their own respiratory and bearing-down efforts during the second stage of labor. More recently, the

Cochrane Database of Systematic Reviews of second-stage labor management practices concluded that there are no data to support a policy of directing maternal pushing and that there is some evidence suggesting it is a harmful practice (Enkin et al., 2000). These concerns are based on mounting evidence that demonstrates links between directed pushing and diminished fetal oxygenation (Blackburn & Loper, 1992), increased maternal fatigue (Roberts & Woolley, 1996; Mayberry, Gennaro, Strange, Williams, & De, 1999), and increased risk of perineal injury (Flynn, Franiek, Janssen, Hannah, & Klein, 1997; Sampselle & Hines, 1999).

Despite evidence that raises concerns about directed pushing, more than 75% of 3,000 labor and delivery nursing staff members encourage prolonged Valsalva-type pushing during the second stage of labor (Petersen & Besuner, 1997). The *William's Obstetrics* textbook (Cunningham et al., 1997) advises providers to instruct women to "take a deep breath as soon as the next uterine contraction begins, and with her breath held, to exert downward pressure" (p. 333). Providers frequently urge sustained pushing throughout a contraction and cheer women on to ever greater pushing efforts (Mayberry et al., 1999).

Davis-Floyd (1992) noted that externally based instruction may conflict with the internal processes of labor: "To have a number of people continually exhorting and commanding her to either push or not to push constitutes a complete denial of the validity of the natural rhythmic imperatives of the laboring woman's body" (p. 119). Poignant narratives of this disconnect between the laboring woman's bodily urge to push and the provider's instruction to discount this sensation are detailed by Bergstrom et al. (1997). Providers insist that involuntary urges to push be suppressed and label pushing as not appropriate until a designated authority certifies full dilation of the cervix, while apologetic women valiantly strive to hold back their body's urge to push. Similarly, provider direction of the process of pushing during the expulsive phase of labor discounts the birthing woman's innate rhythmic imperative.

**M**ost providers urge prolonged bearing-down efforts during the second stage of labor.

Yeates and Roberts (1984) concluded that birth attendants who support spontaneous pushing in second-stage labor must use a set of behaviors and skills that differ from simple instruction. In part, providers must be able to

share information that assists the birthing woman to release bodily tension by enhancing the woman's confidence in her body's ability to birth the baby and her understanding of the meaning of the different sensations she is feeling as she accomplishes the birth. Ritualistic information sharing about when, how, and how long to push does little to instill such confidence or understanding.

Descriptive data about provider communication that facilitates spontaneous pushing are lacking in the extant literature. This may partially account for why research advocating spontaneous pushing has not been translated into practice more successfully. That is, practitioners may not encourage spontaneous pushing due to lack of knowledge about the effects of nondirective communication on labor processes and lack of a data bank of nondirective communication phrases to draw from when managing second-stage labor. For example, providers have questioned, "If I don't tell her how to push, what I am going to do to support her?" This study was designed to address this knowledge gap, posing the following research questions: (a) Is it possible to distinguish verbal communications that support spontaneous pushing from communications that support directed pushing? (b) Are different verbal communications from providers during the second stage of labor associated with different maternal pushing behaviors? and (c) Does the extent of spontaneous pushing influence the length of second-stage labor or total pushing time?

To address these questions, we used the following process, which is further delineated in the Method section. First, we established the reliability of raters' evaluations of maternal pushing behavior. Second, we developed and evaluated criteria for provider communications supporting spontaneous or directed pushing. Third, we estimated the association between raters' evaluations of type of provider communication and different raters' evaluations of maternal pushing behavior. Fourth, we timed the duration of the second stage and the total time women spent pushing during the second stage and estimated the association between these measures and spontaneous versus directed pushing behavior.

## Method

We conducted a secondary analysis of data from the Promoting Effective Recovery from Labor study (National Institutes of Health NR04007-08, principal investigator C. Sampselle). The study took place in the birth unit of a large, midwestern health system following procedures and protocols approved by the institutional review board of the university and health system. Participants for this secondary analysis ( $N = 20$ ) were primigravidas with vaginal births, aged 21 to 38 years, who were able to

communicate in English. For the purposes of this study, providers were defined as birth unit nurses, nurse-midwives, and obstetricians. The predominant provider communicating with the laboring woman during the second stage was the birth unit nurse. This individual varied from case to case and sometimes within case. The nurse-midwife or obstetrician was primarily present when the birth was imminent. Women consented to be videotaped during the second stage of labor, which was determined to begin either from the time that a woman felt a voluntary urge to bear down or from the time the cervix was assessed to be completely dilated, whichever came first. Although the videotape focus was on the perineum (since documenting tissue injury was an aim of the parent study), the video also included an audio track. Thus, all communication between the birthing woman and her caregivers and maternal pushing behavior during the second stage was recorded.

### *Classification of Maternal Pushing Behavior*

Based on the literature, a classification system was developed a priori to determine whether women's behavior during the second stage of labor was spontaneous or directed. A list of criteria the raters used to categorize maternal pushing behavior is presented in Table 1. Overall, the woman's pushing behavior was categorized as spontaneous when she demonstrated an individualized rhythmic style of pushing following cues from her own body regardless of provider instruction. For example, a sigh or moan was observed at the beginning of a new contraction, but the woman did not initiate any bearing down effort until 20 or 30 seconds into the contraction, and her bearing down effort occurred without direction from the provider. Directed pushing involved a pushing response from the woman that was elicited by the care provider, who established a pattern of telling the woman when and how to push. For example, the provider alerted the woman that a new contraction was beginning, instructed her to take several deep breaths and then to bear down, and the woman behaved according to provider instruction.

Two nurse-midwifery graduate students, who each had at least 7 years of labor and delivery experience, independently reviewed 20 birth videotapes and applied the pushing effort criteria (see Table 1) to determine whether maternal pushing behavior was spontaneous or directed. Ten of the videotapes were rated by both observers to establish interrater reliability. The observers also timed the length of each maternal bearing down effort and calculated total pushing time. The percentage of total time spent in spontaneous versus directed pushing by the birthing woman was determined by each observer. Videotape footage was revisited as necessary to review behavior that occurred during the second stage of labor and to clarify and confirm the categorization of each push.

**TABLE 1**  
*Criteria for Categorizing Each Pushing Effort*

Spontaneous pushing
Breathing pattern during contraction and pushing is self-directed.
Time of initiating push is irregular (woman initiates push independently, and pushing often begins once contraction is well established).
Pushing may be characterized by grunting with pushing, short and more frequent bearing-down efforts with each contraction, or both.
Open glottis pushing (i.e., grunting noise while pushing).
Patient follows cues from own body.
No verbal instruction as to how to push is given.
No nonverbal instruction is given (e.g., provider does not take a deep breath to provide a cue).
Caregivers offer encouragement and praise only, not instruction.
Directed pushing
Following verbal direction, demonstration, or instruction from caregivers regarding:
Time of pushing (when to start/stop).
Length of pushing (how long to push).
Position for pushing.
Breathing during pushing.
Strength of push.
Specific direction on how to push.
Instruction to make no noise with pushing efforts.
Actively positioning the woman in a certain way for pushing or verbally directing her to position herself in a certain way.
Vaginal examination with concurrent direction such as "push my finger out."
Vaginal examination actively stimulating Ferguson's reflex or manipulating or stretching the cervix or perineum.
Following any nonverbal instruction regarding how to push.

*Interrater reliability.* Interrater reliability was assessed by comparing the two observers' independent ratings of percentage of spontaneous pushing in the 10 cases independently rated by both. The association between the two raters' assignments of percentage of spontaneous pushing was estimated using Pearson's correlation. A method described by Bland and Altman (1986) was also used to determine the extent of agreement between the raters.

*Categorization by pushing behavior.* After establishing interrater reliability, we added 10 cases to the sample that were rated by only one of the two observers. This brought the total sample size to 20. For cases rated by both observers, we calculated the average percentage of spontaneous and directed pushing and used these averages in further analyses. The cutoff for categorization of pushing

as spontaneous or directed was more than 50% of pushing behavior in the respective category.

### Classification of Provider Communication

*Content analysis.* A content analysis was conducted to create a set of criteria to categorize each provider communication phrase with respect to pushing style. More than 40 exemplary phrases were gleaned from the videotapes. The principal investigator distilled these exemplars to create a set of criteria that guided categorization of communication phrases as either supportive of spontaneous pushing or supportive of directed pushing (see Table 2). In general, communication supportive of spontaneous pushing affirmed the woman's innate experience of her body and underscored that the pushing urges perceived by the woman were of great value in guiding her through labor. In contrast, communication supportive of directed pushing shifted control to the provider, who became the primary source of information about how the pushing should occur. Neutral communications such as, "I'm just adjusting the light" were excluded from the analysis because this information did not focus on pushing behavior.

*Interrater reliability using expert ratings in a subsample of 5 births.* To establish reliability in coding communication phrases, a subset of 5 randomly selected videotapes was reviewed and transcribed by the principal investigator, yielding a record of verbal communication between care providers and participants during the second stage of labor. Five raters with expertise in maternal care reviewed the transcripts and used the criteria developed in the content analysis to categorize each communication phrase as supporting spontaneous pushing or supporting directed pushing. Agreement among the raters was estimated using multiple rater kappa (Fleiss, 1971). Kappa for multiple raters was calculated (a) for all communication phrases across the entire sample and (b) separately for the communication phrases within each birth. In both of these cases, an overall kappa and a separate kappa for each category of communication (spontaneous or directed) were calculated. Data were coded as missing in cases in which raters failed to rate a communication phrase or in which raters selected more than one category for placement of a communication phrase.

*Single rater categorization of communication phrases for all 20 births.* After establishing reliability of communication categorization, the provider communications in each of the 20 births were categorized by a single rater. The single rater was trained to better than 96% agreement with the principal investigator categorization.

*Association between provider communication and maternal pushing behavior.* The association between type of provider communication and maternal pushing behavior was calculated using Pearson's *r*.

**TABLE 2**

### Criteria for Categorizing Each Communication Phrase With Transcript Example

Supportive of spontaneous pushing
Affirming how well the birthing woman's body is working. "You're doing good."
Giving information about progress of baby through birth canal. "You're moving the baby down."
Giving information about sensations the mother might be feeling. "You're probably feeling a lot of burning and stretching."
Affirming her effort, when no instruction has been given about the bearing-down effort. Patient does bearing down on her own; provider says, "Good."
Asking for feedback from the birthing woman about what she is feeling.
Encouraging the birthing woman to work with or listen to her bodily urges.
Supportive of directed pushing
Instructing how or when to push.
Using a vaginal examination to instruct about pushing, e.g., "Push right here."
Reinforcing the birthing mother's compliance with immediately preceding instructions about pushing.
Instructing how to breathe.

*Relationships between pushing behavior, duration of second stage of labor, total time spent pushing, and epidural analgesia.* Differences in the length of the second stage of labor and in total pushing time between those whose pushing was categorized as predominantly spontaneous (defined as more than 50% spontaneous) and those whose pushing was categorized as predominantly directed (defined as more than 50% directed) were estimated with two sample *t* tests. The difference in percentage of spontaneous pushing behavior between those women who did and did not have an epidural was estimated with two sample *t* tests.

## Results

### Classification of Maternal Pushing Behavior

*Interrater reliability.* The association between the two observers' ratings of percentage of maternal spontaneous pushing behavior was high (Pearson  $r = .98$ ,  $p < .01$ ,  $n = 10$ ). Nine of the 10 cases rated fell between 2 standard deviations of the mean difference between raters (mean difference = 1%, SD of the mean difference = 5%, range = -6% to +12%), indicating good overall agreement using Bland and Altman's (1986) criteria.

*Categorization by pushing behavior.* When the sample of 20 cases was classified according to pushing behavior,

**TABLE 3***Categorization of Provider Communications, Pushing Behavior, Epidural, and Provider Type*

Case	Number of Spontaneous Communications	Percentage of Total Communications Supportive of Spontaneous Pushing	Percentage of Total Minutes Spent Pushing in the Style of Spontaneous Behavior	Minutes Spent in Second Stage of Labor	Epidural	Midwife or Obstetrician
1	133	68.2	69.1	180	Yes	Obstetrician
2	145	33.8	32.7	83	Yes	Obstetrician
3	124	63.6	85.0	95	Yes	Obstetrician
4	153	44.3	19.1	121	No	Midwife
5	440	64.5	67.3	177	No	Midwife
6	156	87.1	90.9	57	No	Midwife
7	135	60.5	62.9	31	No	Midwife
8	99	91.7	91.3	30	Yes	Midwife
9	181	37.7	54.8	139	No	Obstetrician
10	87	89.7	90.6	13	Yes	Obstetrician
11	259	50.9	64.8	204	No	Midwife
12	43	11.6	11.3	90	No	Midwife
13	91	47.6	42.3	89	No	Midwife
14	92	71.9	72.4	63	No	Midwife
15	126	94.7	86.8	89	No	Midwife
16	38	11.1	6.7	86	No	Midwife
17	78	29.4	3.4	110	Yes	Obstetrician
18	73	22.0	7.8	113	No	Midwife
19	10	62.5	95.0	62	No	Midwife
20	171	41.8	52.8	166	No	Midwife

we found that maternal behaviors exemplifying spontaneous pushing ranged from 3.4% to 95.0% of total maternal pushing behavior. Thirteen participants were categorized as primarily pushing spontaneously and 7 as primarily pushing in a directed fashion. Table 3 portrays the data for each woman. Of the 13 women categorized as pushing spontaneously (i.e., greater than 50% of the time), 11 pushed in this manner for at least 63% of the second stage.

### *Classification of Provider Communication*

*Interrater reliability of expert raters in a subsample of 5 births.* The overall kappa of .85 reflects very good agreement (Fleiss, 1971). The kappas indicated very good agreement within the spontaneous (.85) and directed (.84) categories. Also, kappas calculated for the communications within each participant's birth separately ranged from .71 to .90, indicating very good agreement among raters.

*Single rater categorization of communication phrases for all 20 births.* The communication categories for each birth as determined by the single trained rater are sum-

marized in Table 3. Provider communication encouraging spontaneous pushing ranged from 11% to 95% over the 20 cases.

*Association between provider communication and maternal pushing behavior.* There was a strong positive association between the percentage of provider communication phrases categorized as supportive of spontaneous pushing and the percentage of maternal pushing behavior that was, in fact, spontaneous (Pearson's  $r = .80, p \leq .001, n = 20$ ). Likewise, there was a strong positive association between the percentage of provider communication phrases categorized as directed and the percentage of maternal pushing behavior that was directed (Pearson's  $r = .89, p \leq .001, n = 20$ ).

*Relationship between maternal pushing behavior and duration of the second stage of labor, total time spent pushing, epidural analgesia, and provider type.* Comparisons of characteristics of second-stage labor by pushing behavior category are summarized in Table 4. A mean difference of 1.6 minutes was demonstrated in the length of the second stage of labor between women whose pushing was primarily spontaneous as compared with those

**TABLE 4**  
*Pushing Behavior and Characteristics of Second-Stage Labor (n = 20)*

	<i>Pushed Spontaneously (n = 13)</i>		<i>Pushed in Directed Style (n = 7)</i>		<i>Total Sample (n = 20)</i>		t	p Value
	M	SD	M	SD	M	SD		
Second-stage duration (minutes)	100.5	65.2	98.9	15.3	99.9	52.6	.06	.95
Total pushing time (minutes)	23.5	22.7	18.6	7.9	21.8	18.7	.55	.59

whose pushing was primarily directed (two-sample  $t = .06, p = .95, n = 20$ ). Actual time spent pushing by women in the spontaneous group was a mean 4.9 minutes longer than those whose pushing was directed (two-sample  $t = .15, p = .89, n = 20$ ). These differences were not statistically significant in this small sample size, nor do they seem large enough to be considered clinically significant.

**C**ommunication supporting spontaneous pushing enables caregivers to use current evidence-based practice and does not extend the duration of the second stage or pushing time.

We further explored the data with respect to the impact of epidural analgesia. Of the 20 births evaluated for maternal pushing behavior, 70% (14/20) of the women had an epidural as compared to 30% (6/20) who did not (see Table 3). The proportion of spontaneous pushing behavior in the epidural group averaged 52% as compared to 62% in the nonepidural group, a nonsignificant difference ( $t = 0.62, p = .55, n = 20$ ). Moreover, the actual difference of 10% does not seem great enough to warrant clinical significance.

Recognizing that provider type is a potential factor in maternal pushing behavior in that the philosophies of the two professional groups tend to differ about how much direction women should receive during labor, we documented whether the provider who managed the birth was a nurse-midwife or an obstetrician. Seventy percent (14/20) of participants had nurse-midwives, with a mean spontaneous pushing time of 55.1% (range = 6.7–91.3%), and 30% (6/20) had obstetricians, with a mean spontaneous pushing time of 56.7% (range = 3.4–85.0%). Case-by-case results are detailed in Table 3.

## Discussion

### *Link Between Provider Communication and Maternal Pushing*

Our major finding is that the predominance of provider communication style, either directed or spontaneous, was significantly associated with the physical manner of maternal pushing during labor. That is, provider communication contributed substantially to the actual pushing behavior of the birthing woman. Although this is not a surprising finding, it does attest to the powerful effect that communication of the birth unit nurse has on maternal behavior. Considering attitudinal differences about the degree of direction that is desirable among nurse-midwives as contrasted with obstetricians, it is noteworthy that some obstetricians' patients (e.g., cases 3 and 10; see Table 3) were classified into the spontaneous pushing group. In each case, 65% or more provider communication was supportive of spontaneous pushing. Although provider attitudes were not measured as a part of this study, one can speculate that the birth unit nurse who was able to provide communication supportive of spontaneous pushing for each of these women was a factor in the high proportion of spontaneous pushing that each woman demonstrated.

No birth attendant exclusively supported spontaneous pushing within an individual birth experience, nor would we expect such exclusive support. When women request information about pushing, the birth attendant should communicate it in a manner that enhances the woman's confidence in her own body. If the practice of directed pushing is to be abandoned, bringing the conduct of second-stage labor into line with current standards of care (Enkin et al., 2000), providers must alter the verbal cues used to communicate to laboring women. Nursing care including communication that supports spontaneous pushing is congruent with Roberts's (2003) new understanding of the second stage because the highest priority is placed on following the lead of the mother's body.

**TABLE 5*****Examples of Provider Communication That Supported Spontaneous Pushing***

1. Your body is working just wonderfully.
2. (You're) stretching out beautifully.
3. You're doing so well!
4. Woman: I think I want to push again.  
Nurse: OK, that's perfect. Perfect!
5. (You're moving the baby) right down. Really nice. Beautiful!
6. There's a noticeable change (in progress of the baby's head).
7. Oh, beautiful clear (amniotic) fluid!
8. Woman: I think another one's coming.  
Nurse: OK, wait till you're sure.
9. Woman: I'm ready (to push).  
Nurse: OK, you'll be feeling more pressure.
10. (You're feeling) lots of burning. That's 'cause you're really making progress.
11. You'll feel pressure in your bottom as the baby's moving down. It'll feel more intense.
12. Woman: Should I be doing anything else to get her out?  
Nurse: Not necessarily, whatever your body is telling you to do.
13. Do you want to deliver in this position or are your knees getting too tired? 'Cause if you want we can help you flip over.
14. Woman: Is it (the head) going back?  
Nurse: This is what babies do. The baby takes four steps forward and then the baby takes three back. Every time you push you do make a little progress. Pretty soon you'll push and the baby will stay.

***Absence of Association Between Pushing and Length of Second Stage***

Most birth attendants would be offended to have the support they offer characterized as authoritarian or commanding, but it is difficult to deny the reality of most birthing environments. Exhortations to "Push! Push harder!" and commands to "Take a deep breath, now PUSH!" seem to be an inextricable part of the birthing milieu. The reason many providers give for continuing to use directed pushing is the belief that this technique will shorten the second stage of labor. The documentation of maternal time spent pushing and of the total length of second-stage labor enabled us to explore potential differences between the women whose pushing behavior was primarily spontaneous and those whose pushing was primarily directed by their caregiver. The lack of significant difference in duration of the second stage between women who pushed primarily spontaneously and women who pushed in a directed manner suggests that spontaneous pushing does not increase the length of the second stage as does the lack of significant difference demonstrated in total pushing time between the two categories of pushing style. These findings warrant investigation with a larger

sample, with particular attention given to such variables as maternal fatigue and perineal injury. Our finding of no significant difference in duration of second stage is convergent with the prior work of Yeates and Roberts (1984), Knauth and Haloburdo (1986), and Parnell, Langhoff-Roos, Iversen, and Damgaard (1993).

***Limitations***

A limitation of this study is that some raters who categorized the transcripts to establish interrater reliability also observed portions of the videotaped material at some point. However, exposure to the videotapes was sporadic and did not occur at all for three of the five raters. Thus, the high proportion of interrater agreement and the significant association between the predominant category of provider communication and actual maternal behavior argue persuasively that the interpretation was accurate.

***Recommendation for Further Research***

Although we did not originally set out to analyze the impact of epidural analgesia, the fact that many of the women in our sample elected to use this type of analgesia led us to assess its potential effect on maternal pushing. Our findings of similar spontaneous pushing experiences in those who had an epidural compared with those who did not suggest that spontaneous pushing is feasible in conjunction with epidural analgesia. However, further investigation with a larger sample is warranted.

***Implications for Practice***

Based on the provider communication that we observed in the videotaped analysis, the ritual mantra of "push, Push, PUSH" that permeated much of the heavily directed labors was difficult to listen to even in the remote environment of data analysis. The provider, though intending to be supportive, often took on the guise of a drill sergeant or demanding parent. We are led to speculate about the impact of such unrelenting direction on maternal discouragement and fatigue.

We note that providers who are supporting spontaneous pushing provide a great deal of feedback about how women's bodies are working to bring about the birth. We list in Table 5 some examples of their supportive communication that enabled birthing women to work unimpeded with the rhythmic bodily imperatives of labor that each brought to her birthing process. We recommend

**If the practice of directed pushing is to be abandoned, providers must alter the message they communicate to laboring women.**



that birth attendants provide information along these lines rather than routine ritualistic pushing instruction.

We conclude that provider communication supporting spontaneous pushing accomplishes two important goals: (a) use of the most current evidence-based practice in the conduct of second-stage labor (Enkin et al., 2000) and (b) no extension of the duration of second-stage labor or the actual maternal time spent pushing.

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